







THE
ENTOMOLOGIST'S
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CONDUCTED BY

C. G. BARRETT, F.E.S. W. W. FOWLER, M.A., F.L.S.
G. C. CHAMPION, F.Z.S. R. McLACHLAN, F.R.S.
J. W. DOUGLAS, F.E.S. E. SAUNDERS, F.L.S.

LORD WALSLINGHAM, M.A., LL.D., F.R.S., &c.

SECOND SERIES—VOL. XII.

[VOL. XXXVII.]

“An attempt had been made to show the impossibility of preventing in the long run the natural spread of insects, the futility of attempts at extermination of well established pests, and the folly of viewing with alarm matters that had been going on for thousands of years without very great hurt to human interests.”—C. L. MARLATT (*in Presidential Address to Assoc. Ec. Entomologists*, 1899).

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THE
ENTOMOLOGIST'S
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SECOND SERIES—VOL. XII.

[VOLUME XXXVII.]

ADDITIONS, &c., TO THE LIST OF BRITISH *COLEOPTERA*
DURING 1899 AND 1900.

BY PROF. T. HUDSON BEARE, B.Sc., F.E.S.

In the December number of vol. xxxiv (1898) of this Magazine, Mr. Champion published an account of the additions, &c., to our list during 1898, and as several novelties have been recorded during the past two years, and disputed points in the synonymy of others have been cleared up, it appears advisable to summarize them into one article.

Carabus nitens, L., var. *niger*, Semenow.—Taken by Mr. Donisthorpe in the New Forest in 1895 (Ent. Record, xi, p. 71).

Anchomenus quadripunctatus, De Geer.—Hitherto this species has remained, doubtfully, in our catalogue on the authority of one specimen taken many years ago by Mr. Bold in Northumberland. Mr. Champion has taken it in numbers near Woking, under fallen pine needles (Ent. Mo. Mag., xxxvi, pp. 202, 236).

Harpalus latus, L., v. *erythrocephalus*, F.—Found in numbers by Mr. W. E. Sharp in North Wales (Ent. Mo. Mag., xxxv, p. 159). I took it some years ago near Oban, and Dawson mentions it in his *Geodephaga Britannica*.

Phytosus nigrirentris, Chev.—Canon Fowler, in his *Coleoptera* of the British Islands (vol. ii, p. 170), expressed the opinion that probably this insect was identical with *P. balticus*, Kraatz. Mr. Champion states (Ent. Mo. Mag., xxxv, p. 1) that it is a distinct species, and gives distinguishing characters; he mentions the Chesil Beach as its locality. Since his note was published it has been recorded from Flintshire, and from Hoylake, and is no doubt as widely distributed as *P. balticus*.

Diplota sinuatocollis, Muls. and Rey.—The only record of this insect given by Canon Fowler (*op. cit.*, ii, p. 171) is Ireland. Mr. Champion has taken it in Sheppey (Ent. Mo. Mag., xxxv, p. 265), and it has also been found at Weymouth and Altcar.

Stichoglossa semirufa, Er.—Taken by Mr. Harwood near Colchester by beating oaks (Ent. Mo. Mag., xxxv, p. 55), an interesting addition.

Trogophlaeus anglicanus, sp. n., Sharp.—Taken in fair numbers by Mr. Keys and Dr. Cameron on the shores of a tidal stream at Plymouth. It seems probable that this insect is identical with *T. unicolor*, sp. n. (Fauvel), Sharp, from New Zealand, and that it has been introduced (Ent. Mo. Mag., xxxvi, p. 232).

Orochares angustatus, Er.—A single specimen was taken about twelve years ago by Mr. Piffard at Leverstock Green, Herts, at roots of rushes, in a disused clay pit. It has been recorded by Canon Fowler (Ent. Mo. Mag., xxxvi, p. 286).

Olibrus flavicornis, Sturm.—This insect was introduced by Mr. Rye as *O. helveticus*, Tourn., and stands under that name in our Catalogues, and in Canon Fowler's work (*op. cit.*, iii, p. 152); it has been taken at Caterham, Sandown, &c. (Ent. Mo. Mag., xxxv, p. 159, and Ent. Record, xi, p. 136).

Olibrus affinis, Sturm.—Taken by Mr. Newbery and by Mr. Champion; has hitherto been considered identical with *O. particeps*, Muls. (Ent. Record, xi, p. 137).

Cercyon bifenestratus, Küst.—Taken by Mr. Newbery at Deal in 1896. Perhaps confused in our collections with *C. marinus*, Thoms. (= *aquaticus* of British collections). (Ent. Record, xi, p. 265.)

Leptidia brevipennis, Muls.—Mr. Newbery (Ent. Mo. Mag., xxxv, p. 292) adduces evidence to show that as this Longicorn has been taken so often, and in such widely distributed localities, it may now be fairly considered acclimatised, and is therefore entitled to a place in our catalogue.

Dinoderus minutus, F., *D. pilifrons*, Lesne, *Stephanopachys substriatus*, Payk.—Mr. Donisthorpe states (Ent. Record, xii, p. 16) that these three species have all occurred in Great Britain (probably introduced), and have been confused under the one name of *D. substriatus*, Payk.

Hypera elongata, Payk.—The old records of this species were incorrect or very doubtful, but a specimen was taken by me near Edinburgh (Ent. Record, xi, p. 334). Since my note in the Ent. Record, Mr. Dale has examined his insects standing under this name and found they were not *H. elongata*. The species, therefore, probably had not been taken in Great Britain before.

Anthonomus rufus, Schön.—Taken by Mr. Bennett, and afterwards by me at Hastings, Fairlight (Ent. Record, xii, p. 159).

Ceuthorrhynchus querceti, Gyll.—This insect has previously been confused with *Ceuthorrhynchidius terminatus*, Herbst. Mr. Champion says (Ent. Mo. Mag., xxxv, p. 142) that it has been captured at Horning Fen by Mr. Brewer, Mr. Edwards, and Mr. Elliman; it appears always to occur in marshy places.

Phytobius muricatus, Ch. Bris.—Mr. Champion states (Ent. Mo. Mag., xxxv, p. 143) that this insect has hitherto probably done duty in our collections as *P. quadrinodosus*, Gyll. On the other hand, *Rhinoncus denticollis*, Gyll., must disappear from our catalogue, as it is really synonymous with *Phytobius quadrinodosus*, Gyll., and has been incorrectly included under *Rhinoncus*.

Aphthona noustriata, Goeze, var. *ænescens*, Weise.—This variety has been taken in Wales by Messrs. Walker and Tomlin (Ent. Mo. Mag., xxxv, p. 15).

Aphthona herbigrada, Curt., var. —?—Mr. Champion records (Ent. Mo. Mag., xxxv, p. 211) the capture in Yorkshire by Mr. Chaster of an æneous coloured variety of this species, having more elongate antennæ in the males than the type.

There are thus in the two years' work eleven undoubted additions to the catalogue, and three others which were doubtful have been confirmed, while one name, *Rhinoncus denticollis*, disappears from the list.

Hypophlæus linearis, Fabr., which appeared as an addition to our list in Mr. Champion's list of 1898, has been taken by that gentleman at Woking, a new locality (Ent. Mo. Mag., xxxv, p. 117). Two other interesting records are the captures in the New Forest (Ent. Record, xi, p. 340) of *Tropideres sepicola*, F., and *Ernobius abietis*, F. The former has hitherto rested on the single specimen taken by Mr. Plant

at Buddon Wood, and Canon Fowler considered the latter doubtfully indigenous (Coleoptera Brit. Islands, vol. v, p. 193). *Pachyta sex-maculata*, Linn., has also now been taken in two fresh localities in Scotland (Ent. Mo. Mag., xxxvi, pp. 235, 287).

It is perhaps worth noting that two old Stephensian difficulties have been cleared up in the identification of *Anomala Donovanii*, Marsh., as *Anomala irrorata*, Blanchard, an American insect; and of *Eumolpus Dillwynii*, Steph., as *Scelodonta nitidula*, Baly, a common eastern species (Ent. Mo. Mag., xxxv, p. 269).

Richmond: December, 1900.

ON THE COLEOPTERA OF THE FAROE ISLANDS.

BY DR. O. M. REUTER.

In his interesting note on *Coleoptera* from Iceland and the Faroë Islands, in Ent. Mo. Mag., vol. xxxvi, pp. 253, &c., Dr. D. Sharp says that he has been able to find only ten species recorded from the Faroë Islands, found by Mr. Walker, 1890, and mentioned in the Entomologist for that year, pp. 374 and 375. He then enumerates 29 species, found by Mr. Annandale.

In Naturhistorisk Tidsskrift, 3 Række, 13 Bind, Dr. H. J. Hansen of Copenhagen has already (1881) published a Faunula Insectorum Færœensium (pp. 229—278), in which are recorded 65 *Coleoptera*, 4 *Neuroptera*, 26 *Hymenoptera*, 15 *Lepidoptera*, 86 *Diptera*, 2 *Orthoptera*, and 6 *Rhynchota*.

The following are the *Coleoptera* not enumerated by Dr. Sharp:—

Bembidium bipunctatum and *bruxellense*, *Pterostichus nigrita* and *vitreus*, *Calathus melanocephalus*, *Hydroporus pubescens*, *Helophorus grandis* and *aquaticus*, *Hydrobius limbatus*, *Megasternum boletophagum*, *Quedius umbrinus* and *boops*, *Othius fulvipennis*, *Lathrobium fulvipenne*, *Stenus speculator* and *unicolor*, *Aleochara lanuginosa* and *mæsta*, *Autalia puncticollis*, *Homalota fungi*, *elongatula* and *circellaris*, *Tachinus marginellus*, *Lesteva bicolor*, *Omalium deplanatum* and *rivulare*, *Attagenus pelli*, *Simplocaria metallica*, *Aphodius ater*, *Niptus crenatus*, *Anobium molle* and *domesticum*, *Enicmus minutus*, *Cryptophagus scanicus*, *saginat*, *dentatus*, and *n. sp.?*, *Atomaria apicalis*, *Helodes minuta*, *Otiorrhynchus maurus*, *Barynotus Schönherri*, *Tropiphorus mercurialis*, *Pissodes pini*, *Apion cruentatum*, and *Gracilia minuta*.* The insects were mostly collected in 1863—1868 by Dr. A. Bergh.

The following nine species, enumerated by Dr. Sharp, are not mentioned in Dr. Hansen's list:—

* *Agabus alpestris* of Hansen is considered to be a variety of *A. bipustulatus*.

Amara aulica, *Patrobus excavatus* and *assimilis*, *Bembidium tibiale*, *Hydroporus griseostriatus*, *Philonthus aeneus*, *Lesteva Sharpi*, *Dermestes lardarius*, *Chrysomela staphylea*.

In the publication of Mr. Walker there is only one additional species, *Otiorrhynchus scabrosus*.

Thus, at the present time at least 74 or 75 *Coleoptera** are known from the Faroë Islands. The species found before the collections were made by Mr. Annandale are mentioned also by W. Lundbeck in "*Coleoptera et Hymenoptera Groenlandica*" (Videnskabelige Meddelelser, 1896, pp. 196—251), and by G. Jacobson in "*Insecta Novaja-Zemljensis*," pp. 63—65 (Acta Acad. Scient. Péttersb., 1898).

Helsingfors: November 5th, 1900.

ANDRENA HELVOLA, L., AND AMBIGUA, PERKINS.

BY THE REV. F. D. MORICE, M.A., F.E.S.

In the middle of May last I took near Leatherhead a number of very fine and fresh *Andrenæ* (males and females) under circumstances which make it impossible for me to doubt that they all belong to one species. Among the males, however, are some which, according to received ideas, are unquestionable specimens of *helvola*, L., having, together with the other characters of that species, a pretty distinct tooth at the base of the mandible. In others, on the contrary, this tooth is scarcely perceptible, and in some it completely disappears, so that they cannot be distinguished from the males of *A. ambigua*, Perkins, as described by that author (Ent. Mo. Mag., xxxi, p. 39). As to the females I can see no reason to doubt that all are specimens of *helvola*.

Unless, therefore, some reliable structural difference other than that in the form of the ♂ mandible can be pointed out between *helvola*, L., and *ambigua*, Perkins, it seems at least questionable whether the latter can be maintained as a distinct species. I do not venture to say that it is not so, but the matter seems to require further investigation. I understand that Mr. Perkins is at present out of England, or I should have submitted my specimens to him before publishing this note.

Both sexes of the bee abounded on *Alliaria officinalis*, which was the only plant I saw them visit.

Brunswick, Woking:
October, 1900.

* *Lesteva bicolor* of Hansen is probably *L. Sharpi*.

TWO SAW-FLIES NEW TO BRITAIN.

BY THE REV. F. D. MORICE, M.A., F.E.S.

Of the genus *Tomostethus* separated by Konow from *Blennocampa*, auctt., we have, according to Cameron (Mon. iv, p. 177), five British species. To these I can add two more—one taken by the Rev. A. Thornley (June, 1898) near Lincoln, the other by Mr. Alfred Beaumont (August, 1900) at Appledore in Kent.

Mr. Thorley's capture is *T. gagathinus*, Klg., ♂, Mr. Beaumont's is *T. funereus*, Klg., also a ♂. Both species are recorded in Konow's Catalogue from "Germania, Gallia, and Suecia."

The chief distinguishing character of *Tomostethus* is the definition of the apical part of the mesosternum (*præsterna*) by a distinct impressed suture. Some of the species in it have a closed discoidal cell in the inferior wing, others none. Both the present species belong to the former of these groups, and are very nearly allied to each other. Their descriptions will be found on the same page (213) of "Hymenoptera Scandinaviæ," where 14, *B. gagathina*, follows 13, *B. funerea*.

Both are black and shining, with dusky wings and yellow tibiæ. *Funereus* has the femora and tarsi also yellow, only its coxæ and trochanters being black. In *gagathinus* the apices of the femora are yellow, but their bases black; and the tarsi are fuscous. *Gagathinus* has also shorter and heavier looking antennæ; and its tempora are margined below, which is not the case in *funereus*. (This last is a difficult character to see, but an important one for separating species in the *Blennocampidæ*).

Thomson further distinguishes *gagathinus* by its "almost interstitial" transverse marginal nervure. It might be called so in the specimen before me, but I must own I see very little difference as to the position of this nervure in the two species.

Both insects have a well marked "horny spot" in the second cubital cell, so that neither of them can be identified with the species which Mr. Cameron formerly called *micans*, but now *brachycera*. (That species is known to me only in his description).

Woking: December, 1900.

ACULEATE HYMENOPTERA IN DUMBARTONSHIRE.

BY J. R. MALLOCH.

During the last two seasons I have been collecting *Hymenoptera Aculeata* in the Bonhill district, with the purpose of forming a list to be published next year in the Handbook that is to be issued to mark the Brit. Assoc. Meeting in Glasgow. Mr. DalGLISH, of Glasgow, has

also been collecting the bees, and between us we have turned up quite a few good species, and some that are new to Scotland. My co-worker has been fully as successful as I; and although we have had only the short space of two years to make up the list we have reached the total of 102 species, and may possibly find some few more additions with the assistance of friends or older records. Among the species that are worth noticing are the following:—

Salix fuscus, Linn.—Not uncommon at Arrochar, May and June, 1899. *S. parvulus*, Dahlb.—This species was abundant at Levenside Moor in June, 1899, but was much scarcer this year; it occurs with *Andrena analis*.

Ceropales maculata, Fabr.—Levenside Moor, Bonhill, 1900, scarce.

Crabro palmipes, Linn.—This species was very abundant, being even commoner than *cribrarius*, on the hillsides; it was met with almost everywhere in sandy banks, *C. varius*, Lep.—Not so common as the preceding, but met with at Levenside Moor and Bonhill, 1899–1900. *C. dimidiatus*, Fab.—One specimen flying along an old wall on Dumbarton Road.

Vespa austriaca, Panz.—Have taken this species at Bonhill, 1879, and possess a specimen taken near Paisley, 1899.

Odynerus trimarginatus, Zett.—This species occurred on an old wall on Levenside Moor, Bonhill, in July and August, but was not common.

Sphecodes hyalinatus, Schenek.—Jamestown and Bonhill, scarce. *S. variegatus*, v. Hag.—Levenside Moor and Bonhill, scarce.

Andrena fucata, Smith.—Occurred near Jamestown, not uncommonly, flying about hawthorn hedges at the end of May. *A. fuscipes*, Kirby.—One ♂, 1899, and several ♀s, August, 1900, on Levenside Moor; flying on the heath. *A. analis*, Panz.—A very common species; burrowing in the moorland paths, Levenside Moor, &c.

Nomada obtusifrons, Nyl.—One specimen, 1899, and several more, 1900, Levenside Moor and Jamestown. *N. borealis*, Zett.—Scarce; one at fallows, 1899, and two more at dandelion flowers, 1900, Bonhill.

Dillichip Terrace, Bonhill, N. B.:

October 24th, 1900.

ACULEATE HYMENOPTERA IN THE WEST OF SCOTLAND.

BY ANDREW ADIE DALGLISH, F.E.S.

During the last two years, whenever the weather permitted, I have devoted a great amount of my time in collecting the *Aculeata*; the principal object being to assist Mr. J. R. Malloch with the list which he is compiling for the occasion of the British Association's visit to Glasgow in 1901. It is an extremely interesting group, and I am afraid my favourite Order, the *Lepidoptera*, has been somewhat neglected during these two years.

To Mr. Edward Saunders, F.L.S., I am indebted for the identification of the greater portion of my captures, all the specimens having gone through his hands. I have already had the occasion of personally thanking Mr. Saunders, when he spent an afternoon with me in Glasgow, but must also embrace this opportunity of again expressing my gratitude, not only for the identification of my captures, but for the very great interest which he has undoubtedly taken in the matter.

The weather during these two seasons, as every one knows, has not been of the finest description, but full advantage was taken of the intervening fine days; and I am not altogether displeased at the result. The following is a list of the principal captures:—

Pompilus angularis, Thoms.—One ♂ on flower heads of yarrow, King's Cross, Arran, August 18th.

Oxybelus uniglumis, Linn.—Several near Irvine, June 30th to July 22nd, on wild carrot. *O. mandibularis*, Dhlb.—Rare, near Irvine, July 14th, on similar plant (three specimens).

Odynerus spinipes, Linn.—One ♂, Dundonald, July 14th. Mr. Anderson Fergusson also brought me from Barr 2 ♂s and a ♀.

Prosopis brevicornis, Nyl.—One ♂ and four ♀s, Irvine. July 22nd.

Halictus tumulorum, Linn.—♂s very common at King's Cross, on knapweed, August 15th.

Andrena Cetti, Schr.—One ♂ swept from birch, and two ♀s on scabious, Aug. 4th—8th, at King's Cross.

Nomada ochrostoma, Kirb.—One ♀, Barr, Ayrshire, in 1898, Mr. Anderson Fergusson. *N. Fabriciana*, Linn.—One, King's Cross, August 13th, near burrows of *Andrena Gwynana*.

Epeolus productus, Thoms.—One specimen, Irvine Moor, July 8th, 1899; and another at same locality, July 22nd last; this little species will doubtlessly be parasitic on *Colletes montanus*.

I can find no previous Scotch record for any of the above. The following are rare in Scotland, but have all been recorded:—

Pompilus spissus, Schiödt.—One ♂, Dundonald, Ayrshire, July 14th.

Crabro tibialis, Fab.—One ♂, Dundonald, swept from birch, July 14th.

Colletes montanus, Mor.—This species, which I had the luck to add to the British list last year, and which was described by Mr. Saunders, *anté* vol. xxxv, p. 262, I again found this season very commonly from June 30th to July 22nd, at Irvine.

Andrena cineraria, Linn.—One ♀ taken by the late Mr. Geo. W. Ord at Strathbane, June, 1899, and a ♂ from Pirnmill Arran, June this year, by Mr. A. Fergusson.

Nomada obtusifrons, Nyl.—One ♂ and five ♀s at King's Cross, Arran, on August 13th, at a spot where *Andrena coitana* was abundant.

Bombus Jonellus, Sm.—One ♀, Irvine Moor, July 8th, 1899; Luss, June 2nd,

1900; and King's Cross, August 15th. *B. soroensis*, Fab. — One ♀, Barr, Ayrshire, July, 1899; one ♂, Kilkerran, September 15th, and ♀s from Dundonald, July 14th; and Kilsyth, September 8th this year.

Mr. Anderson Fergusson has kindly permitted me to record the specimens taken by him.

21, Princess Street, Pollokshields :

November, 1900.

CORSICAN ANTS, &c.

BY G. C. BIGNELL, F.E.S.

Last summer (May to October, 1899) I spent in Corsica, and the greater part of the time I had lodgings in Ucciani, which is about 19 miles from Ajaccio, at an altitude of about 1250 feet; it was in this district that the undermentioned insects were obtained. I am very much indebted to Mr. E. Saunders for naming the specimens.

Camponotus maculatus, Fab.

(*r. athiops*, Latr.).

lateralis, Oliv.

pubescens, Fab.

Colobopsis truncata, Spin.

Lasius emarginatus, Oliv.

flavus, De Geer.

Plagiolepis pygmaea, Latr.

Bothriomyrmex meridionalis, Roger.

Tapinoma erraticum, Latr.

Leptothorax tuberum, Fab.

(*r. Nylanderi*, Foerst.).

angustulus, Nyl.

Myrmica rubra, Linn.

(*r. scabrinodis*, Nyl.).

Cardiocondyla sp. ? ♂.

Aphanogaster barbara, Linn.

testaceopilosa, Luc.

Pheidole megacephala, Fab.

Solenopsis fugax, Latr.

Cremastogaster scutellaris, Oliv.

The large species of the above began to æstivate in June and remained in that condition until the rains appeared in September, the smaller species were obtained by beating, mostly from *Arbutus*, which is the prevailing shrub of the island. It may be also interesting to note that on May 11th and following days I observed *Aphaenogaster testaceopilosa* in several localities robbing weaker nests of their pupæ, I presume to strengthen their own, as do *Formica rufa* and *Myrmica rubra* in England.

I also obtained two species of *Mutilla*, viz., *maura* and *viduata*, and three of *Scolia*; *S. flavifrons*, Fab., was abundant on the flowers of a large thistle at Campoloro, near Ajaccio, two or three often occurring on one flower; the other two I captured were smaller species, viz., *quadripunctata* and *unifasciata*.

Saltash : September 10th, 1900.

NOTES ON BRITISH *TRYPETIDÆ*, WITH ADDITIONS TO THE LIST.

BY RALPH C. BRADLEY.

Records of *Trypetidæ* appear so seldom, and the insects are, with one or two exceptions, so uncommon, that a few remarks about them may prove acceptable, especially, as during the last season, several interesting species have been taken.

The additions. *Tephritis (Oxyna) elongatula*, Lw., a pair swept in a field at Swanage, August 29th. *T. ruralis*, Lw., one ♀ taken June 29th, 1898, New Forest.

The next two, although not in the list, have been exhibited and recorded by myself. *Rhacochlæna toxoneura*, Lw., one ♀ on window, Sutton Coldfield, May 22nd, 1897; this has not apparently been taken again. *Tephritis tessellata*, Lw., one ♀ taken in July, 1894, New Forest; Mr. Wainwright and myself came across this species on a visit to West Runton, Norfolk; seven specimens.

In the same district we found *Trypeta cornuta*, F., commonly on the heads of a *Centaurea*; it is a lovely green insect when alive, but unfortunately fades to a dirty drab when dead—this was new to us. *T. tussilaginis*, F., and *T. bardanæ*, Schrk., were fairly common, and Mr. Wainwright was lucky enough to get a ♂ *Spilographa alternata*, Fln.

Urophora solstitialis, L., occurred; and *Tephritis vespertina*, Lw., and *Sphenella marginata*, Fln., were common.

Ensina sonchi, L., fell to the sweeping net, and I also met with it at Bournemouth, and later on two specimens on sunflowers in my garden at Moseley. *Urellia stellata*, Fues., a few at West Runton, I afterwards found it more commonly at Bournemouth, and, like the previous species, found it in a field a few days later close to my house. These two are recorded, I believe, for the first time in the Midlands.

Urellia eluta, Mg.: this is in italics in Mr. Verrall's list. Mr. Wainwright took a single ♀ at West Runton, and he has also met with *Trypeta onotrophes* at Selsby and Sutton Coldfield.

Tephritis absinthii, F., three specimens of this fell to my share at Bournemouth in August (two males, one female).

The genus *Carphotricha* seems very rare; last year I captured a ♂ *guttulans*, Mg., in my garden, July 26th, 1899, and this year Mr. Martineau swept a ♀ *pupillata*, Fln., at Solihull.

Many of these little gems used only to be obtained by systematic sweeping, and it behoves one when examining the contents of the net not to throw the *débris* away hastily, as the little creatures seem stunned, and it is frequently four or five minutes before some of them recover sufficiently to crawl up the net.

Coleopterists must come across these little spotted and banded winged flies in their sweeping excursions, and I should be glad if any collectors would kindly forward them to me, by this means increasing our knowledge of the distribution of this interesting group, and possibly adding to our list.

Lyndhurst, Mayfield Road,
Moseley, Birmingham:
December, 1900.

ATHERIX CRASSIPES, MEIG.: A NEW BRITISH DIPTERON.

BY H. W. ANDREWS, F.E.S.

While collecting in July last near Ticehurst in Sussex, I took half a dozen specimens of a Dipteron which Mr. Verrall has since kindly identified for me as *Atherix crassipes*, Meig., an addition to the British list; he also tells me that there are only a few European records for this species. My specimens were taken flying among some small alder bushes on the banks of the River Rother, and had I known what it was I was catching, I could have taken a considerably longer series, as it was not at all uncommon in that particular locality.

9, Victoria Road, Eltham :
November, 1900.

Merodon equestris, Fab.—It may be of some interest to note that I found in a newly erected house near Saltash thirteen dead specimens of *Merodon equestris*, six ♂ and seven ♀; on making enquiries I ascertained that the owner had purchased at a sale room in the town a parcel of imported bulbs, that he deposited them in a glass cupboard for a time; while there the larvæ left the bulbs, turned to pupæ, and the flies duly emerged. Not knowing this Dipterous fly, I sent them to Mr. Coryndon Matthews for identification; he kindly named them, and remarked that he had taken several specimens in his garden at Ernie Wood, near Ivybridge, mostly in one season, and that they varied in colour as much as those I found. These flies are thickly covered with short stiff hairs on the thorax and abdomen, and may be mistaken for small bumble-bees; four represent in colour *Bombus venustus*, and one a ♀ *lapponicus*, the other eight are rather mixed in colours for good comparison, for no two are quite alike.—G. C. BIGNELL, Home Park Road, Saltash, Cornwall: November 19th, 1900.

Correction concerning Erebia glacialis.—I should like to correct a couple of lines on p. 292, vol. xxxvi. What I believe I said was that the insects shown were very close to the form called *melas* from Campiglio. This was at one time supposed to be *melas*, but was proved by Calberla to be *glacialis*.—T. A. CHAPMAN, Betula, Reigate: December 3rd, 1900.

Notes on Lepidoptera from Staffordshire.—I have taken one specimen of *Vanessa C-album* here this season; it is a great rarity in these parts. Of *Colias Edusa* I have seen one. *Acherontia Atropos* has been plentiful in the larva state. *Macroglossa stellatarum* has occurred all through the summer; I took the last at rest in my hall on October 22nd. On July 22nd I took at light a nice specimen of *Xylophasia scolopacina*; it is, I believe, the second ever taken in the county. On August 19th I captured one *Apamea fibrosa* at sugar, being the second that I have secured here. I have found this year that *Hadena contigua* feeds on larch in the wild state; Mr. Woodforde beat one larva from it last year, but we both thought that the larva had fallen from an overhanging birch; I beat out two this year, very late in the season, from an entirely isolated small larch.—RICHARD FREER, Church Street, Rugeley, Staffordshire: November, 1900.

Leucania vitellina, *L. albipuncta*, *Laphygma exigua*, *Heliothis armigera*, &c., in South Devon.—On August 24th last I left home to have nearly three weeks in South Devon, in company with my friend Mr. J. Jäger, of London. Our special object was to take *Leucania vitellina*, *L. albipuncta*, and *Laphygma exigua*. A South Devon friend had suggested a locality which he thought would be likely to produce these species, though that particular bit of ground had never previously been sugared; and during our stay he frequently joined us in our work. Unfortunately the season was a late one, and the best work was done after I left on September 12th. Mr. Jäger remained some days after me, and our friend continued to sugar into the early days of October. Of the three species only *L. albipuncta* seemed to be out at the time of our arrival, and of it I took one the first time I sugared, on August 25th. One night the following week, the only night during my stay in which the atmospheric conditions were really satisfactory, I took five, but it was the sole occasion on which more than odd specimens occurred to us. *L. exigua* I did not take until the end of our second week, but a few days after I left Mr. Jäger captured as many as five one evening; and still later it occurred even more freely to our friend. *L. vitellina* did not turn up at all during my stay, but Mr. Jäger was fortunate enough to take it a few days later, and from that time to the first week in October a fair number were captured, mostly in fine condition, and one of them “as red as the red form of *albipuncta*.” Thanks to the generosity of my friend, a nice representative set of it, as well as of *L. exigua*, now grace my own cabinet. *L. vitellina* comes early to sugar, almost as soon as dusk comes on; it is very skittish, and requires careful boxing. Our experience with *L. exigua* was altogether contrary to Mr. Woodforde’s (cf. Barrett’s British Moths, vol. v, p. 274). With us it also came early, and was practically over by 9 o’clock; and it only came in numbers on calm, dark, warm nights, being scarcely seen during strong wind, or late, the latter being the condition in which Mr. Woodforde took it. But, unlike *L. vitellina*, when once on the sugar there is no further trouble with it, as it sits perfectly quiet, and will not be frightened off. It deposits its eggs freely, and Mr. Jäger, our friend, and myself, all now have larvæ feeding from the captured moths. During this time, too, a few fine *Heliothis armigera* occurred, and probably it has not often happened to one collector to take *L. vitellina*, *L. albipuncta*, *L. exigua*, and *H. armigera* on one—and the first—“round” of his sugar, as occurred to our friend on September 16th! To proceed to more ordinary species, *Colias Edusa* was abundant everywhere on the many miles of coast we explored, and any number might have been taken; a few of its variety, *Helice*, occurred with it, but of *C. Hyale* we never saw a specimen, though we constantly kept a sharp look out for it. The other butterflies included a single late *Argynnis Paphia*, *Vanessa Io*, *Atalanta*, and *cardui*, in plenty; and *Lycæna agestis*, *alexis*, *argiolus*, and *Adonis* in smaller numbers. *Macroglossa stellatarum* flew about flowers, but was scarce; *Calligenia miniata* and *Lithosia caniola* occurred, but the latter, although it had been unusually common in the district, was then practically over. The same remark applies to *Leucania putrescens*, though it turned up still in fine condition at my sugar on August 25th. *Stilbia anomala* was plentiful in one spot, and of it quite a number of females were taken at sugar, but singularly not a single male appeared at the sweets, though on the wing common enough. One of the most abundant *Noctuæ* was certainly *Caradrina ambigua*, which continued, and in good condition, all through our visit. A fine form of *Noctua neglecta* was fairly

common; and a single large female *Aplecto occulta* was taken. *Bryophila glandifera* was still not uncommon on walls, and had previously been very plentiful and variable. Other *Noctuæ* included *Hydræcia nictitans*, *Heliophobus popularis* (very dark), *Miana furuncula*, *Agrotis puta*, *segetum*, and *saucia*, all in fine variety, *A. suffusa*, *Tryphæna fimbria*, *Noctua glareosa*, *N. rubi*, *Cosmia diffinis*, *C. affinis*, *Polia chi*, *P. flavocincta*, *Epunda lichenea*, *E. lutulenta*, and *Plusia festuæ*. The numbers of second brood specimens of *Acronycta rumicis*, *Mamestra brassicæ*, *Hadena oleacea*, &c., were, to a northerner, a striking feature. A single *Thyatira batis* occurred on September 8th, probably also a second brood specimen. Of *Geometræ*, one of the most noticeable, from its abundance, was *Acidalia promutata*: it occurred commonly on walls wherever we went, and as we sat in our sitting room with open windows, after we came in at night, was constantly about our large lamp, and in greater plenty than any other species. *Melanippe galiata* nearly equalled it in numbers, followed by *Eubolia bipunctaria* and *Anaitis plagiata*. Other species were *Acidalia subscitæata*, *Aspilates citraria*, *Eupithecia centaureata*, *E. pumilata* (plentiful at sugar), *Melanippe rivata*, *Phibalapteryx lignata*, &c. Before our arrival several *Anticlea sinuata* had been taken, surely making a new locality (if not county) for this local species. The smaller moths included *Spilodes sticticalis*, *Scopula ferrugalis*, in abundance, *Scoparia angustea*, *Phycis carbonariella*, *Crambus geniculellus*, &c. A good variety of the genus *Depressaria* also came to the sugar, among which *Alstræmeriella*, *rotundella*, and *Douglasella* were noticed.

Some time was devoted to other Orders, and among the dragon-flies, the interesting *Æschna mixta* was plentiful in one spot of marshy ground, having a wide stream running through it. But although Mr. Jäger and myself spent a good portion of one fine morning over it, and when we frequently saw four or five at one time, neither of us managed to catch one, nor did we ever see one settle. The only one secured, a fine specimen, was taken by a boy and brought to us. On the same ground *Sympetrum striolatum* was abundant, with a few *Ischnura elegans*. Odd specimens of one or two other species were seen on the wing, but their identity is doubtful. Of *Planipennia* and *Trichoptera*, *Chrysopa flavifrons*, *C. vulgaris*, *C. aspersa*, *Limnophilus affinis*, and *L. lunatus* were all common at sugar; by which means also the following five species of *Orthoptera* were attracted. *Forficula auricularia* in profusion as usual; *Leptophyes punctatissima*, common; *Locusta viridissima*, fairly so; *Meconema varium* and *Ectobia Panzeri*, several of each; *Stenobothrus bicolor* and *S. parallelus* were both abundant; and *Xiphidium dorsale* was not uncommon in the marsh previously referred to. Of *Diptera*, a pair of the fine *Asilus crabroniformis* were captured.—GEO. T. PORRITT, Crosland Hall, near Huddersfield: November 10th, 1900.

Lepidoptera in Anglesea.—I spent my holiday this year about two miles from Holyhead. During my stay, June 21st to July 10th, the weather was most inclement; I cannot imagine a worse three weeks for the time of the year. It rained nearly every day, accompanied by a stiff S.W. breeze; so the following list is by no means indicative of the resources of the locality. The night flyers were all taken at white campion, which was very abundant. I did no sugaring, for if there had been anything but stone walls to sugar, I am sure I should never have kept my lamp alight.

The following is a list of insects taken:—*Lycæna Alexis* (common everywhere), *L. Egon* (very common in one locality), *Chærocampa porcellus* (common), *Sesia philanthiformis* (locally plentiful), *Dianthæcia capsicola* and *D. conspersa* (buff forms), *Caradrina morpheus*, *C. cubicularis*, *Chariclea umbra*, *Hadena dentina*, *Cuculia umbratica* (in swarms), *Mamestra albicolon*, *Hecatera serena*, *Agrotis porphyrea*, *Noctua plecta*, *Melanippe galiata*, *Emmelesia decolorata* (large and strongly marked), *Eubolia palumbaria*, *Pseudoterpna pruinata* (cytisaria), *Acidalia promutata*, *A. scutulata*, *Eupithecia venosata* and *E. nanata*, *Anaitis plagiata*, *Ennychia cingulata*, *Platyptilia ochrodactylus*, *Pempelia palumbella*, *Homœosoma nebulella*, and *Phycis subornatella* (very common).—RICHARD FREER, Church Street, Rugeley: Nov. 1900.

Autumnal notes from Seaton, Devon.—About the third decade of October, I began to take steps for recording the latest dates on which certain species of insects could be found here this season. The following are some of the results of my observations:—

October 25th.—*Epinephile Janira*, 1 ♂, seen on the sea shore at Seaton Hole; also the last of *Pieris rapæ*.

November 1st.—*Macroglossa stellatarum*; 2nd, *Chrysophanus Phlæus* and *Stenopteryx hybridalis*; 6th, *Sympetrum striolatum*; 9th, *Colias Edusa*, var. *Helice*, in prime condition: all near the sea shore. 13th, saw a *Vanessa Io* flying in the village of Seaton at noon; another was brought to me from a beetroot bed on the 14th, which was rather torpid in the morning, but flew away afterwards. 15th, a newly emerged ♂ of *C. Edusa* was drying its wings near a clump of *Lotus corniculatus* on the cliff, about 11 a.m.; I secured the pupal slough, which was within an inch or two of the fly. The imago was brightly coloured, and continued to haunt the environs of its birthplace, with another individual of the same sex, until the forenoon of the 19th inst. Then came a frost, and they were seen no more. 18th, the last day of *V. Atalanta* on ivy-bloom, at Seaton Hole; a week later, *Vespa vulgaris*, ♀, was there still—doubtless from a well sheltered nest; for the inmates of another community in an open situation at the foot of the cliffs, retired from business quite ten days earlier—A. E. EATON, Woodlands, Seaton, Devon: November 26th, 1900.

P.S.—*V. Atalanta* was seen again yesterday.—A. E. E.: November 28th, 1900.

An unrecorded example of Cloantha perspicillaris from the New Forest.—I have a specimen of *Cloantha perspicillaris* taken in a garden in the New Forest in 1873 by Lady Florence Herbert, sister of Lord Pembroke; it has not hitherto been recorded.—C. W. DALE, Glanvilles Wootton: November, 1900.

New differentia of Agrotis tritici and nigricans.—In consequence of diverse opinions as to the species of an insect which belongs to me, and which, from presumably melanic influences, is quite black, without any mark on the fore-wings, I was led to make a minute examination, in order to satisfy myself as to its identity, it being admitted one of the above two species.

The only things distinguishable are the stigmata (which are the same dull black as the rest of the wing, and without outline); they are, however, enclosed in a black velvety wedge-shaped streak, the base of which is beyond the reniform, and

its sharp point extends into the angle formed by the median and subcostal nervures, enveloping both stigmata, rendering them conspicuous, and is almost identical with the streak enclosing the stigmata of *agathina*.

The stigmata in *nigricans* are in contact with two *quadrate* black spots, the one nearest the base being between the first transverse line and the orbicular, and the other a rhomboidal black spot between the orbicular and reniform stigmata. There is not anything in the nature of a streak or a point. As the pointed streak is constant in the ordinary forms of *tritici*, there is no doubt that my melanic specimen belongs to that species, but there is not any other feature observable by which it can be identified. — BEN. BLAYDES THOMPSON, 6, Benson Road, Forest Hill, S.E. : *November*, 1900.

Macrogaster arundinis in *Norfolk*.—I well remember the interest which this species—perhaps the most singular and pronounced type of fen insect—excited in my mind when I first began to turn attention to fen collecting, and the delight with which I secured my first specimens at Wicken, in June, 1873. One of these was a ♀, and laid me eleven eggs, which Mr. Barrett turned out for me at Ranworth, inserting each separately at the axil of a leaf of reed. Nothing more was seen of them, till in August, 1878, Mr. W. H. B. Fletcher took two specimens on the very spot where these were turned out. Naturally we concluded that these were descendants of the ova turned out (by the way, the larva is said to take from two to three years to feed up; in the former case living through the winter and appearing in June, and in the latter—far more rarely—pupating in the second summer, and coming out in August, so that these might conceivably be a second generation from our ova. I give this statement on the authority of the late T. Brown, of Cambridge, but I know of no reason to doubt it). The spot has been repeatedly worked since, occasionally in June, and constantly in August, but no more *M. arundinis* have been seen.

What, then, was my surprise at taking a single specimen this year (August) in the Hickling Fens! It seems inconceivable that the brood introduced at Ranworth should have remained invisible there for 20 years, and yet sufficiently plentiful not only to keep up the stock, but to extend its borders to so far remote a spot, leaving no traces between.

Of course, till we have fresh details of collecting in the Hickling district the whole must remain as an unsolved problem, but it certainly looks as if somewhere in that locality there existed a colony of this very interesting species. It is very strongly attracted by light, and a little persistent work through the district from June to August would soon give us some data by which to settle the question.

It is curious that both these Norfolk captures were in August; whereas in Wicken not one out of twenty would be taken in that month: the time being from the beginning of June to the first week of July.—F. D. WHEELER, Paragon House School, Norwich: *October*, 1900.

[In the Ent. Record, x, p. 231 (1898), Mr. Percy C. Reid, of Kelvedon, notices the capture of three specimens of *M. arundinis* at light, on August 11th, at "a very considerable distance from Ranworth."—EDS.]

Scottish Aculeates.—I am glad Mr. Malloch has called attention (Nov., 1900, p. 264) to Mr. Peter Cameron's Clydesdale record of *Vespa arborea*, Smith (now regarded as identical with *Vespa austriaca*, Panzer), of which I was not previously aware. Mr. Cameron, I find, has also recorded *Nomada flavoguttata* from two localities in Inverness-shire, namely, Glen Shiel and Kingussie (Proc. Nat. Hist. Soc. Glasgow, ii, p. 294, and iii, p. 90), and I regret to see I have stupidly put *Crabro chrysostomus* into the first part of my note (p. 265), instead of the second (for I was well aware of Mr. Service's record in his Dumfries list), so that my records of these two species also are not the first for Scotland. I am now able, however, to add to my list *Salix parvulus*, Dhlb., from Aberfoyle. Mr. Saunders' remarks (pp. 266-7) on Sutherlandshire examples of *Passalæcus monilicornis* have led me to re-submit to him my supposed *P. gracilis* (which has, as he pointed out when he first saw it, the labrum black, but the prothoracic tubercles white), and he now considers it a variety of *P. monilicornis*.—WILLIAM EVANS, 38, Morningside Park, Edinburgh: November 9th, 1900.

Spathius exaratus, L., parasitic on *Anobium domesticum*, Fourc.—Some six years ago, when I was in Armagh, I found that *Anobium domesticum* had attacked the supporting pillar of a large rosewood table that stood in my drawing room. I applied carbolic acid to the burrows of the beetles, and the attack seemed to cease. Last year Mrs. Johnson brought me a Braconid, and asked me if it would be attacking the table, as the burrows were showing afresh, and she had caught this insect running about on the pillar. My first impression was that the Braconid was there by accident, but the appearance of others proved the reverse. We captured some, and I put them by, intending to make enquiries, but forgot all about them till Mrs. Johnson brought me more specimens last month which she had caught in the same place, viz., on the pillar of the table. I was convinced then that they were attacking the *Anobium*, and not knowing anything about the tribe sent them to Mr. E. Saunders, who very kindly forwarded them to Mr. Claude Morley, to whom I am indebted for the determination of the species. As the creature was doing so good a work I did not interfere further than to take the few specimens referred to. It seems to enter the burrows of the *Anobium*, but whether it attacks the beetle or its larva of course I had no means of determining, as the table is quite too valuable to excavate; however, there are lots of *Anobium*, so perhaps I may get an opportunity with some less valuable wood.—W. F. JOHNSON, Acton Glebe, Poyntzpass: October 13th, 1900.

Astutus stigma, Panz., and other Aculeate Hymenoptera, &c., on the Lincolnshire coast.—On June 30th last I spent a couple of hours in collecting Hymenoptera and Diptera on the coast at Skegness; the exact spot being a small expanse of sandy ground, partly overgrown with bushes of sea-buckthorn (*Hippophaë rhamnoides*) and maritime grasses, with a few tufts of bird's-foot trefoil (*Lotus corniculatus*), &c., and situated immediately behind the sand-hills a few yards north of the pier. Here the ground literally swarmed with *Pompilus plumbeus*, Fab., accompanied by a few *P. gibbus*, Fab.; and of rare species I took a fine male of *Astutus stigma*, Panz., and two specimens of *Tachytes unicolor*, Panz. Flying about their burrows, and visiting the flowers of the bird's-foot trefoil, were numbers of *Megachile*

circumcincta, Lep. ; their parasite, *Caelioxys simplex*, Nyl., was also fairly common. Among other species taken were *Tachytes pectinipes*, Linn., *Oxybelus uniglumis*, Linn., *Crabro Wesmali*, V. de Lind., and *C. peltarius*, Schreb., *Andrena nigroaenea*, Kirb., &c.

A subsequent visit to the same spot on July 18th yielded *Pompilus rufipes*, Linn., *Prosopis communis*, Nyl., and *P. brevicornis*, Nyl., *Sphecodes subquadratus*, Sm., *Halictus rubicundus*, Christ, and *H. morio*, Fab., *Andrena albicus*, Kirb., and *A. nana*, Kirb.

Among the *Diptera* taken may be mentioned *Philonicus albiceps*, *Stratiomys chameleon*, *Nemotelus uliginosus*, and *Chloromyia formosa*. The beautiful silvery *Thereva annulata* was abundant all over the sand-hills.

My best thanks are due to the Rev. A. Thornley, who examined all my specimens, and is responsible for the identifications.—J. W. CARR, University College, Nottingham : November 5th, 1900.

Andrena Hattorfiana, Fab., and *Nomada armata*, H.-Schff., near Oxford.—On June 19th last my friend Mr. W. Holland gave me a *Nomada* which he had found clinging to a flower of the Bugloss (*Echium vulgare*) the previous evening near Tubney, Berks, on the Wantage Road, which lies about seven miles west of the city, and which we identified as *Nomada armata* (subsequently confirmed by Mr. Ed. Saunders). This notable capture made me long to visit the locality on the first opportunity, feeling certain that if *N. armata* was there, *Andrena Hattorfiana* would be also. So that it was with no small amount of pleasure that I started on July 8th to look for both species, in which I am glad to say I was in no way disappointed, for no sooner had I arrived on the ground than *N. armata* was netted, and then directly after *A. Hattorfiana* also ; patient work for several hours resulted in a very fine series of the sexes of both species. *A. Hattorfiana* was taken flying persistently to the flowers of the small white clover (*Trifolium repens*), with an occasional visit to a small yellow composite (*Crepis virens*), though the peculiar colour of the pollen on two or three ♀s point to their having gathered it from *Knautia arvensis*, as it was exactly like that being collected from that plant by several ♀s captured on August 12th, near Dawlish, S. Devon. It has peculiarities not common to the genus, in that when first alighting on a flower it holds its abdomen almost vertically, showing conspicuously the bright golden hairs on the apical segments, which gives it a very singular appearance ; and in its site for nidification it did not choose the bare spots, but simply burrowed amongst the herbage in a more or less solitary way, and was not gregarious, like *labialis*, *humilis*, and others of the genus. Two specimens of the red variety of the ♀ were taken, and several ♂s also show traces of the same colour at the apices of the first and second abdominal segments.

N. armata, though not so abundant as its host, was not at all rare, frequenting the same flowers and place, but seemed far more " skittish " than is usual with most species of *Nomada*, flying off with great rapidity on the least alarm. It varied but little in colour, and only a trifle in size.

A further visit to the same spot a week after (July 15th) only resulted in four *A. Hattorfiana* and one *N. armata* being taken, and this after several hours' search, so that one is inclined to think that both species were almost over, a result no doubt hastened by the hot and brilliant weather prevailing at the time.—A. H. HAMM, 22, Southfield Road, Oxford : November, 1900.

Rare Aculeate Hymenoptera at Halling, Kent.—During the past season, accompanied by my friend Mr. H. Lamb, I had a few hours' collecting on the Chalk Downs at Upper Halling. This locality, which was new to us, is situated about seven miles north-west of Maidstone, and four and a half miles south-west of Rochester, proved to be rich in rare Aculeates

On our first visit, June 5th, we took *Crabro lituratus*, Panz., ♀, flying about a wooden fence; *Sphecodes spinulosus*, v. Hag., ♀, off some rough ground on the hill side; *Osmia leucolemans*, Kirb., *O. aurulenta*, Panz., *Nomada ochrostoma*, Kirb.; *Andrena proxima*, Kirb., a not uncommon species in several localities on the chalk hills near Maidstone, occurred on hawthorn blossom and wood spurge; *Nomada flavoguttata*, Kirb., was in company with it on the spurge; *Ceratina cyanea*, Fab., ♂ and ♀, on the Burnet rose, and in August I saw a ♀ in the head of a thistle, but failed to secure it; *Andrena chrysosceles*, Kirb., occurred on the hedge parsley; *Osmia bicolor*, Schrk., ♀, *Halictus levigatus*, Kirb., ♀, were fairly abundant on white beam blossom, and the ♂ of the latter species on ragwort in the autumn.

In August a single specimen each of *Pompilus (Evagethes) bicolor*, Lep., ♀, and *Salix obtusiventris*, Schiödt, ♀; *Andrena denticulata*, Kirb., in fair numbers, together with a few specimens of *Nomada alternata*, Kirb., and *N. solidaginis*, Panz., were obtained off ragwort; *Prosopis dilatata*, Kirb., ♀, from the head of a musk thistle; several males of *Cilissa melanura*, Nyl., were taken, flying close to the ground amongst the plants of a large patch of *Bartsia odontites*, and some females early in September, whilst collecting pollen from its blossoms, *C. leporina*, Panz., occurred in a lucerne field; *C. hæmorrhoidalis*, Fab., on harebells, and *Sphecodes puncticeps*, Thoms., on corn camomiles; *Halictus quadricinctus*, Fab., was plentiful on knapweed; *H. xanthopus*, Kirb., on the flowers of the hoary ragwort.

I was also fortunate enough to take a ♂ of *Halictus maculatus*, Smith; this is, I believe, the first record of the capture of the ♂ in Britain. Mr. E. Saunders was kind enough to confirm my determination of this species.—HERBERT ELGAR, Upper Frant Road, Maidstone: December, 1900.

Bembex rostrata, Linn., in Jersey.—Can any reader of this Magazine tell me if this fine fossorial Aculeate has ever been recorded from the Channel Islands? I have a specimen, with original label still attached, which I captured in Jersey in August, 1873. I do not mean to suggest that the occurrence of the species in the Channel Islands entitles it to a place on the British list.—WILLIAM EVANS, 38, Morningside Park, Edinburgh: November 9th, 1900.

Blacus armatulus, Ruthe, near Ipswich.—Referring to my friend Mr. Beaumont's record of *Blacus armatulus*, new to Britain, in Kent in 1900, I may mention that it is probably a common species in dead bracken and other refuse in our woods during the winter. Two or three specimens of *B. armatulus*, Ruthe, occurred to me in such a situation in Bentley Woods near here in December, 1898, together with the common *B. (Ganychorus) ruficornis*, Nees.—CLAUDE MORLEY, Ipswich: December, 1900.

Harpalus anxius from the Oxford District.—Mr. Claude Morley, in his interesting note, "A quarter of an hour on the Breck" (Ent. Mo. Mag., 1900, p. 288), speaks of *Harpalus anxius* as never taken inland in Britain except at Lakenheath Warren, Suffolk. It is, therefore, worth while to place on record the fact that this species is abundant on a sandy common near Oxford. In the same place also occur *Crypticus quisquilius* and *Cteniopus sulphureus*, both generally looked upon as exclusively coast species. *Microzoum tibiale*, and the genus *Calathus*, usually especially abundant on the coast, are also very plentiful in the same locality.—W. HOLLAND, Hope Department, University Museum, Oxford: December 4th, 1900.

Lathridius Bergrothi, Reitt., and other beetles in a herbarium.—I have received from Prof. Carr, M.A., a number of small beetles taken from a dried specimen of Burdock (*Arctium*) in the herbarium of the University College, Nottingham. They consisted largely of *Corticaria fulva*, Com., a few *Cartodere filum*, Aubé, with *Enicmus minutus* and half a dozen examples of a pretty *Lathridius*, which Mr. Champion kindly informs me is *L. Bergrothi*, Reitt. I have learnt that the specimen of *Arctium* was of English origin, but no doubt the beetle is an introduced species, derived from some of the dried foreign plants in the same herbarium.—ALFRED THORNLEY, South Leverton Vicarage, Lincoln: December 5th, 1900.

[Father M. J. Belon, of Lyons, who has been kind enough to examine one of Mr. Thornley's specimens of *L. Bergrothi*, tells me that it has been found at St. Petersburg and various other places in Russia, and also in Finland, Denmark, Germany (Dresden and Hamburg), Austria, Silesia, and France (Dept. of Calvados). The insect was not described till 1880, and it seems probable that it is gradually spreading on the continent, after the manner of *Coninomus nodifer* (Westw.), as has been noted by Ganglbauer. It is recorded (Rev. d'Ent., xvi, p. 174) as having been found in mould and in faggots. In general appearance *L. Bergrothi* is not unlike *Enicmus transversus* (Oliv.), from which it differs in its larger size, and in the sharply carinate alternate interstices of the disc of the elytra (there are three prominent carinae on each elytron, and the suture also is raised), the margins of the latter being also conspicuously explanate towards the base.—G. C. C.].

Larinus scolymi, Oliv., at Colchester.—Amongst a number of *Coleoptera* sent me for names by Mr. Harwood, of Colchester, there is a specimen of this conspicuous South-European species. The insect must, of course, have been imported in some way to the locality where it was found, possibly with plants of *Cynara scolymus* or *C. cardunculus*, which are much cultivated in gardens. Mr. Harwood's account of its capture is as follows: "I had been collecting Aenleate *Hymenoptera* near the railway at Colchester one afternoon in June last, and as it came over dull I gathered a handful of the flowers of *Knautia arvensis* and took them home in my net, which I hung up on the umbrella-stand on arrival. Next morning, when going out again, I took down the net and found the *Larinus* crawling on it! As I could not make the insect out, I went off again to examine the scabious flowers carefully, and to sweep the embankment, but found no more of the beetle. There is a junction for Clacton and Walton at the place mentioned, and it was on the southern slope of the branch line embankment where I gathered the flowers to take home." *L. scolymi*

is twice the size of our *L. carlinæ*, Oliv., and has a shorter, flatter, and very much stouter rostrum; this latter has on the upper-side an anteriorly abbreviated median carina and two less distinct divergent carinæ extending forwards from the median one on each side towards the base, and on the under-side it is clothed with long hairs. M. Bedel (Fanne Col. Bassin Seine, Rhynch., p. 88) records the capture of an example at Paris, in July, 1876, upon a flower of *Cynara cardunculus* (a spiny plant allied to the artichoke, *C. scolymus*), from Algeria, transplanted to the Botanical Garden of the Museum. I have taken the insect myself in the south of Spain, at Algeciras, whence Mr. Walker has also sent me specimens.—G. C. CHAMPION, Horsell, Woking: December 6th, 1900.

Reviews.

CLASSIFICATION OF THE ICHNEUMON FLIES OF THE SUPER-FAMILY ICHNEUMONOIDEA. [Proc. U. S. Nat. Mus., xxiii (1900), pp. 1—220.] By WILLIAM H. ASHMEAD.

Under the above title we have a really concise and workable diagnosis of the families and genera of a huge mass of the neglected insects. Little or nothing is, generally speaking, at present known in this country of its parasitic flies, and it will come as a revelation to the majority that, while we have relied upon out-of-date works for our superficial platitudes, with the occasional break of a Haliday, a Marshall, or a Bridgman, progress is elsewhere being made at no inconsiderable rate in this section. As the author remarks, from 109 genera known to Burmeister in 1835, we of to-day have to cope with 1140, most of them stable and many still further sub-divisible. This work of Mr. Ashmead is what has so long been needed—a coalition of the superficial Gravenhorstian method with that more truly scientific, though less applicable, of Förster, the recently re-awakened interest in which has been voiced by Thomson. Though we are at issue regarding the systematic position of the Xoridoid Hybophanes, and a few such minor points, the main conspectus is wonderfully clear, and there is no residue of doubt that the present is a work destined to advance the natural classification and general study of our friendly parasites more than any published for many a long day.—CLAUDE MORLEY.

THE STRUCTURE AND LIFE-HISTORY OF THE HARLEQUIN FLY (*CHIRONOMUS*): by L. C. MIALl, F.R.S., and A. R. HAMMOND, F.L.S. 8vo, pp. 304, with a plate and 130 illustrations in the text. Oxford, at the Clarendon Press; London, Edinburgh, and New York, Henry Frowde; 1900.

This book is a Monograph in the widest sense of the "Blood Worm" *Chironomus*. But it goes far beyond that. There may be, no doubt are, some points in which the subject chosen for the title of the book differs from anything else: on the other hand, there are multitudes of species that have very much in common, therefore the work is a Monograph within a Monograph, and as such will prove of very great service. The results of the mass of microscopic work undertaken in the preparation of the book are detailed in a very clear manner, and there is a capital bibliography. The *ensemble* is much after the same style as Prof. Miall's and Mr. Denny's "Cockroach." It is quite possible that Prof. Huxley's "Crayfish" gave the impulse that has resulted in books like these; in any case it has had many imitators.

Obituary.

Père Armand David, C.M.Z.S., died at Paris on November 10th, 1900. He was born at Espelette, in the Basses Pyrénées, in 1826, and having been educated for the priesthood, entered the Society of Lazarists in 1848. In 1860 he was sent as a Missionary to China. Passionately devoted to Natural History, he proved himself probably the most notable of a class (the French Missionaries) that have done so much towards furthering a knowledge of natural science in remote regions, and in China in particular. He made three separate journeys to China, and the region probably most explored by him is that somewhat debatable ground known as Chinese Thibet; but wherever he went his discoveries were remarkable in all branches of Natural History, and he enriched the Museum at the Jardin des Plantes in a most marked manner. He published a good many papers on various scientific subjects; our own Zoological Society made him a Corresponding Member for his services in Zoology. For many years he had resided at the head-quarters of his religious society at Paris, and died there. But not long ago he paid a scientific visit to Syria. We understand that shortly before his death he gave his private collection of insects to M. René Oberthür, who estimates that there are more than 100,000 specimens of *Coleoptera* alone, mainly from China.

Baron Michel Edmond de Selys-Longchamps, Hon. F.E.S.—With great regret we announce the death of this veteran entomologist at Liège on December 11th, in his 88th year. Further particulars hereafter.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *October 15th, 1900.*—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

A letter was read from Mr. C. A. E. Rodgers mentioning the occurrence of *Colias Edusa* on the golf links at Handsworth, about four miles from the centre of Birmingham. Mr. Thos. Clarke exhibited a number of butterflies mostly taken in Yorkshire forty years ago; they were in excellent preservation. Mr. Bradley, *Hymenoptera* taken at West Runton, Norfolk, in August last, *Tiphia femorata*, *Mellinus sabulosus*, *Mimesa equestris*, and *Astata boops*. Mr. F. A. Jackson, the following *Coleoptera*: *Notiophilus 4-punctatus*, *Bembidium monticola*, *Tachypus flavipes*, all from Tonbridge; *Phyllobrotica 4-maculata*, from Bradgate, Leicestershire; *Crioceris asparagi*, from Loughborough, Leicestershire; *Apoderus coryli*, from Haywood, near Birmingham; *Balaninus venosus*, from Buddon Wood, Leicestershire, &c. Mr. H. Willoughby Ellis, the following *Hemiptera-Heteroptera* from Stroud district: *Elia acuminata*, *Elioides inflexus*, *Pentatoma verbasci* (which occurred in hundreds), *Dasycoris hirticornis*, *Stenocephalus agilis*, and *Nabis rugosus*; also from the Knowle district—*Anthocoris nemorum*, *Monanthia cardui*, *Scolopostethus contractus*, *Acanthosoma griseum*, &c; also a number of *Coleoptera* from various places, including—*Anoplodera sexguttata*, New Forest, 1898; *Acanthocinus ædilis*, Walsall, 1900; *Larinus carlinae*, Stroud, June, 1900; *Corymbites æneus*, Dovedale; *Cteniopis sulphureus*, near Cromer; *Melasis buprestoides*,

Knowle; *Bryaxis juncorum*, Knowle, &c.; also *Sesia asiliformis* from Knowle, July, 1898, and *S. culiciformis*, also from Knowle, May, 1898. Mr. A. H. Martineau, *Hymenoptera*, including—*Crabro 4-maculatus*, from Coleshill; *Chrysis viridula*, L., and *Chelostoma campanularum*, Kirby, from Solihull; also *Hæmatopota pluvialis*, ♂, from Coleshill, and *Platycnemis pennipes*, ♂ and ♀, from Bridgnorth. Mr. G. W. Wynn, *Xanthia citrigo*, *Xylophasia scolopacina*, *Cymatophora duplaris*, and *Gonophora derasa*, all from Haywood, Warwickshire, this year.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: October 25th, 1900.—Mr. W. J. LUCAS, B.A., F.E.S., President, in the Chair.

Mr. Kirkaldy, Worple Road, Wimbledon, was elected a Member.

Mr. MacArthur exhibited specimens of *Leucania vitellina* from Shoreham; an example of *Amphipyra tragopogonis*, with pale marginal blotches on the fore-wings; and a specimen of *Thymelicus thaumas* of a pale straw colour. Mr. Lucas, a specimen of the cockroach, *Rhyparobia maderæ* taken in a desk in Covent Garden Market. Mr. T. D. A. Cockerell, a photograph of a hollyhock plant, as an example of the ravages of the larvæ of *Pyrameis cardui* at Raton, in New Mexico. Mr. West, a series of a local Homopteron, *Acocephalus bifasciatus*, taken at Blackheath. Mr. R. Adkin, a series of the plain and banded forms of *Acidalia aversata*, bred in September from ova deposited by a banded female taken at Lewisham in July, and contributed notes on their history and variation; together with living larvæ of *Caradrina ambigua*. Mr. Mera, specimens of *Colias Edusa* and v. *Helice*, with intermediate varieties; very pale specimens of *C. Hyale*; and a specimen of *Smerinthus populi*, with the basal area of the hind-wings suffused with yellow instead of dull red.

November 8th, 1900.—The President in the Chair.

The Annual Exhibition of Varieties was held on this evening, and was a most successful and interesting meeting.

Mr. B. Adkin, a bred *Eugonia polychloros*, with a very pale ground colour; a *Triphena fimbria*, having the black band on the hind-wings extending along the inner margin; and examples of *Catocala promissa*, with paler upper wings, and hind-wings with narrow and straight median band. Mr. Winkley, *Catocala nupta*, var. *cærulescens*, taken in August, 1892. Mr. R. Adkin, varieties of *Argynnis Aglaia*, (1) with basal two-thirds black except a yellow discoidal spot, on the under-side the silver spots were reduced to two on each hind-wing; (2) with greenish blotch on both left wings, similar to those frequently found in *A. Paphia*; (3) with black spots on the central portion of the under-side run together into irregular bands; (4) two unusually dark females, one having an unpigmented patch on both left wings; also a long series of *Melanippe galiata*, showing extreme variation in the width and intensity of the band. Mr. Urwick, a graduated series of variations of *Abraxas ulmata*, from smoke coloured to almost white; a hermaphrodite var. of *Argynnis Paphia*, having the right wings male var. *Valezina*, and the left wings ordinary male type, except a few dark splashes; a suffused var. of the same species; several vars. of *Lithosia quadra*, showing variation in depth of colour and absence

of spots; a sagittate variety of *Epinephile hyperanthus*; grey forms of the same species; a richly banded form of *Ephyra pendularia*, and sixteen very striking varieties of *Chelonia plantaginis*, showing a complete gradation between the extreme form with pure white ground colour and black markings to a much intensified form of var. *hospita*, being an inbred series. Mr. Nevinson, *Malacosoma castrensis*, showing extreme variation; a light form of *Lasiocampa trifolii*; light and dark forms of *Cosmotriche potatoria*; *Arctia Caja*, with radiated black markings on hind wings; hybrids *Pygæra curtula* and *P. pigra*; light and dark *Heliothis peltigera*; a banded form of *Zonosoma linearia*; and extreme light and dark forms of *Melanippe fluctuata*. Mr. F. M. B. Carr, an example of *Diloba cæruleocephala*, in which the 8 mark is represented by two small pale spots; a *Coremia propugnata* (*designata*), with a very narrow, brown, transverse band, and one without a trace of the flame colour; and a male *Malacosoma neustria*, with scarcely any sign of the pale transverse lines. Mr. Hy. J. Turner, a series of *Callimorpha Hera*, taken in August at Dawlish, showing a complete gradation in colour between the rich red of the type, through the terra cotta form to the brilliant yellow form var. *lutescens*; and a very long and varied series of *Bryophila muralis* (*glandifera*) from the same place, remarkable in all the forms being dark, many of a rich yellow-brown coloration, most with black markings conspicuous, and in all the hind-wings were dark, and in some very dark. Mr. Adkin and Mr. Colthrup, series of the latter species from Eastbourne and Folkestone respectively, to compare with them. Mr. Lucas, a series of nine *Libellula quadrimaculata*, showing a complete gradation between the type and an extreme example of the var. *prænubila*. Mr. Chittenden, a large number of varieties taken or bred mostly from Kent, including—*Bupalus piniaria*, right side female, left side male coloration; dark brown *Drepana falcata*; red, dark and light forms of *Taniocampa gracilis*; dark and light forms of *Pachetra leucophæa*; *Phigalia pedaria*, dark vars.; *Hybernia marginaria*, intermediate forms and var. *fuscata*; and extreme light and dark forms of *Cidaria immanata*, *Aplecta prasina*, *Xylophasia monoglyphæ*, &c. Dr. Chapman, a number of specimens of several European species of the genus *Erebia*, to show that the most well-marked forms tend to have black spots with a white pupil in each marginal cell, set in a bright brown band, which may invade a considerable area of the wing, while at the other extreme the dark ground colour may cover the whole wing to the exclusion of all the spots. Mr. J. P. Barrett, to show variation in size, (1) *Colias Hyale*, one 2½ inches, another 1¼ inches in expanse; (2) *Ennomos alniaria*, one 2½ inches, another 1½ inches in expanse; a pure yellow var. of *Aspilates citraria*, without lines; and a specimen of the spring brood of *Agrotis putris*. Mr. H. Moore, forms of *Papilio Machaon* from Greece, India, the Amur, and Japan (var. *Hippocrates*); and a series of *P. Xuthus* from China and Japan. Mr. A. Harrison, long and varied series of *Xanthia aurago*, *Miselia oxyacanthæ*, with v. *capucina*, and *Scopelosoma satellitia*, taken at sugar near Chingford in October. Mr. Main, two *Colias Edusa*, v. *Helice*, bred from ova laid by a female *Helice*, taken at Hanwell. Mr. Mern, dark varieties of *Abraaxas grossulariata*; and a *Cænonympha pamphila* with left hind-wing on the under-side with the colour of the upper-wing. Rev. J. Turbat, very dark *Hybernia defoliaria*, small and varied *Tanagra atrata*; and bred *Stauropus fagi* from spring ova. Mr. Kemp, *Epinephile hyperanthus*, (1) with apical ocelli wanting, (2) a bleached variety; and a similar variety of *E. tithonus*. Mr. Nicholson,

Catocala sponsa, with left upper-wing entirely suffused with umber-brown; *Pararge egeria*, a bred specimen thinly scaled with obscure markings; *Pieris rapæ*, with an indistinct spot on the disc of the hind-wings; *Mamestra brassicae*, of a uniform shining leaden-grey colour; and a series of *Melanippe fluctuata*, including var. *costovata*, and several banded and resembling *M. sociata*. Mr. Cole, *Catocala nupta*, var. *carulescens*, taken on sugar at Brondesbury; and a var. of *C. Hyale*, with a broad elongated splash of black on the under-side of the fore-wings. Mr. Kirkaldy long series of various species of Waterbugs, especially *Notonecta glauca*, and var. *maculata*, to show colour variation, and how unreliable it is as a specific character. Mr. Kaye, a specimen of *Papilio Machaon*, with the submarginal band of the fore-wings internally edged with a broad black band, and with the discoidal spot enlarged into a blotch uniting with the band; and a specimen of *Hydrocampa stagnalis*, with several of the transverse markings much diminished or obsolete. Mr. Buckstone, *Polyommatus Icarus*, female with blue right upper wing, and a specimen smaller than *Cupido minima*. Mr. Newman, *Smerinthus ocellatus* variety; dark forms of *Eugonia fuscantaria*; and a red form of *Noctua neglecta*. Mr. Brooks, bred *Acherontia Atropos*, with a very pale variety, and one with very broad and dark markings; a *Pyrameis Atalanta*, with a pale border on one hind-wing; a black fringed *Spilosoma radiata*; a very varied series of *Melanippe hastata*; and living pupæ of the first named, which he distributed to the members.—HY. J. TURNER, *Hon. Sec.*

ENTOMOLOGICAL SOCIETY OF LONDON: November 7th, 1900.—Mr. G. H. VERRALL, President, in the Chair.

Dr. John Cotton, of 126, Prescott Road, St. Helen's; Mr. George H. Howes, of Spey Street, Invercargill, New Zealand; the Hon. F. M. Mackwood, M.I.C., of Colombo, Ceylon; Mr. William J. Rainbow, of the Australian Museum, Sydney; and Mr. Percy Charles Reid, of Feering Bury, Kelvedon, Essex; were elected Fellows of the Society.

Mr. George S. Saunders exhibited specimens, from Devonshire, of *Pieris rapæ* and *Plusia gamma* caught by the proboscis in flowers of *Araujia albens*, Don, a climbing plant of the natural Order *Asclepiadaceæ*; and explained the nature of the mechanism by which the insects were entrapped by the flowers; also specimens of the "bedeguar" gall formed apparently on the "hips," or fruit, of *Rosa canina*, the formation of the galls on the hips being considered unusual. Mr. Gahan remarked that the capture of insects by *Araujia albens* had recently been investigated in France by MM. Marchand and Bonjour, whose account appeared in the "Bulletin de la Soc. des Sciences Nat. de l'Ouest de la France," for 1899. These authors concluded that insects were captured only by immature flowers, the anther-wings in the cleft between which the proboscis of the insect is caught being at that time stiff and resistant; but when the flowers are ripe the anther-wings become less rigid, and do not offer sufficient resistance to the withdrawal of the proboscis, which carries with it the pollinia ready to be transferred to the stigma of the next flower visited by the insect. Mr. Tutt, for the Rev. Mr. Burrows, a large series of *Epunda lutulenta* from Mucking, in Essex, and made remarks upon several interesting variations included in the series. Mr. W. J. Kaye, *Hydrocampa stagnalis*, var., with examples of the typical form for comparison; the variety differed in having the basal line

nearly obsolete, and in other points. Mr. F. Merrifield, a variety of *Argynnis Dia* taken with a few examples of the ordinary form at Ilanz, in the Vorder Rhein valley early in September last, when what was, he believed, a third brood of this species was abundant. Canon Fowler, a specimen of *Orochares angustatus*, Erichs., a Staphylinid beetle new to the British list, taken at Leverstock Green, Herts., by Mr. Albert Piffard. The Rev. F. D. Morice mentioned as a fact of some interest, that in a nest of *Formica sanguinea* at Weybridge, in which he found males and workers of that species, he found also males and females as well as workers of the slave-ant, *Formica fusca*, an experience somewhat different to that of Huber and Darwin, who stated that workers only of the slave species were found in the nests of *sanguinea*. The Secretary read "Some notes on variations of *Zeritis Thysbe*, Linn.," communicated by Mr. H. L. L. Feltham, of Cape Town, and exhibited one female and two male specimens of one of the rare forms referred to in the paper. This form was originally noticed by Mr. Trimen as an "aberration." Mr. Feltham succeeded in taking several specimens on the summit of the mountains overlooking Minzenberg; he requested that the specimens exhibited should be placed in the British Museum collection.—C. J. GAHAN, *Hon. Sec.*

TRICHOPTERA, NEUROPTERA-PLANIPENNIA, ODONATA,
AND *RHOPALOCERA*
COLLECTED IN NORWAY IN THE SUMMER OF 1900.

BY KENNETH J. MORTON, F.E.S.

The perusal of Dr. Chapman's interesting record of his journey in Norway during the summer of 1898 (*Ent. Mo. Mag.*, 2nd ser., vol. x, pp. 20—28) resuscitated an old wish to see something of the insect fauna and the flora of Scandinavia, and I determined to visit that country the following summer. It was, however, too late in the season before I could arrange to get away, and it was therefore considered advisable to postpone the visit for another year, perhaps not a misfortune, if there is anything in the theory of the biennial appearance of *Erebia Embla*, which amongst other things I desired to see in its own particular haunts.

The route mapped out was a well known one. The drawbacks to this course are obvious, the possible finds or discoveries being necessarily reduced; but one has the advantage of the experience of those who have gone before; and I would here express my thanks to Dr. Chapman, who gave me some valuable hints, enabling me to save both time and trouble. On the journey I was accompanied by my wife, and her net and quick eye contributed largely to the results, especially in *Lepidoptera*.

We reached Christiansand early in the morning of June 17th, and we saw Norway for the first time under the most brilliant sunshine.

The rocky heights behind the town form an excellent hunting ground. There are several small lakes there about which a species of *Cordulia* was sporting as early as 7—8 a.m. As the day wore on many butterflies were seen, including *Aporia crataegi*, *Argynnis Selene*, *A. Euphrosyne*, *Melitæa Athalia*, *Pararge Hiera*, *P. Megæra*, *Lycæna Ægon*, and others.

We did not begin to collect in earnest until we arrived at Saeterstoen late in the afternoon of June 18th. At this place, like Dr. Chapman and his friends, we were accommodated by Herr and Fru Wattne at Maarud, and we were introduced to Norwegian country life under very pleasant and comfortable auspices. We had also perfect weather here, and as it had been dry during the previous two or three weeks, the traversing of the bogs was comparatively easy. We had been warned to look out for mosquitos: we experienced less trouble from these insects than we had anticipated, although towards the end of our stay at Saeterstoen they certainly became more irritating, and the big *Tabanidæ* also increased in numbers. On the Dovrefjeld mosquitos were rather troublesome, and *Hæmatopota pluvialis* at Molde, but on the whole we did not suffer more than one usually does in the Scottish Highlands from the last named species and the hosts of *Ceratopogon*. As far as I am personally concerned, I still give the palm to these minute pests for their power to torment and make one thoroughly uncomfortable.

To Dr. Chapman's account of the Saeterstoen district there is little to add from the Lepidopterist's point of view. Curiosity led us out on the evening of the 18th long after butterfly hours, and we succeeded in disturbing from its roosting place in a spruce our first example of *Erebia Embla*. Subsequently we found this species and *Chionobas Jutta* in great force, but we were of course just rather late to get either in perfect condition. Day after day we came across fresh species, until at last we had secured all those named by Dr. Chapman, excepting *P. amphidamas* (which, I now fear, was overlooked) and *P. comma*, taking in addition, *P. brassicæ*, *A. Lathonia*, *Aglæa*, and *E. hyperanthus*. *Lycæna Amanda* and *P. Hippothoë* were the glory of some of Herr Wattne's uncut meadows, and it was a pretty sight to see the latter beauty sitting towards evening with its flaming red wings outspread to the declining sun. *Colias Palæno* was out earlier than Dr. Chapman's date, and we took it in splendid condition.

On the borders of the "great moor" (where, by the way, *Betula nana* grows, a fact not mentioned by Dr. Chapman) we found *Syrichthys centaureæ* pretty frequent; here also we took a few worn *A. Freija*, and, towards the end of our stay, a fresh little series of *C. tiphon*.

Perhaps, on the whole, Saeterstoen is more an ideal locality for *Lepidoptera* than for *Neuroptera* and *Trichoptera*. By going further afield a series of lakes might have been included in our area, but it was inconvenient to visit them. As it was, we worked only one small lake; for the rest we had the great river Glommen and its backwaters, one or two small brooks, and several ponds and marshes of diverse character. Considering the swampy nature of the district, there was not a superabundance of open standing water.

Some of the ponds in the woods were quite charming, being filled with *Calla palustris*, whose beautiful spathes were fully open. Over the water flitted hosts of two red-bodied species of *Leucorrhinia* and other dragon-flies. One day when working at one of these forest ponds, two eagles circling overhead helped to confirm the delightful feeling that although so near the accessories of civilization, we were where wild Nature still holds a place.

The Corduline Dragon-flies were a feature in the insect life of Saeterstoen; examples very constantly being seen flying along the railway, or high over the trees in the wood, usually difficult to secure in these circumstances. These, I take it, were either females, or males recently emerged. The males of *C. ænea* were abundant about the backwaters and the lake, while the males of *S. metallica* were frequent at other standing waters. *S. arctica* I could not find at home, a stray female being the only one seen.

Agria was well represented in number, but chiefly *A. hastulatum*. Another small species not recognised at the time proves to be an interesting northern species, *A. concinnum*.

The conditions of Trichopterous life in the Glommen puzzled me a good deal. At British rivers in the month of June the burst of life is enormous; on the Glommen for the first few days I could find absolutely no *Trichoptera*, nothing but a *Chloroperla* in numbers and a species of the *Ephemeridæ*. Later *Trichoptera* did appear, but not in large numbers. I can only conclude that the Glommen is a cold, late river. On the Clyde *Limnophilus fuscicornis* occurs at the end of May, while the same species seemed to be just appearing on the Glommen towards the end of June.

Leaving Saeterstoen on June 28th we proceeded to the Dovrefjeld by way of Lake Mjøsen and the Gudbrandsdal. Between Lilleström and Eidsvold we saw from the railway plenty of *Calopteryx virgo*, and between Lillehammer and Otta, the present terminus of the railway, what appeared to be *Parnassius Apollo* in abundance. Neither of these insects was seen elsewhere. At Braendhaugen *Lycæna*

Pheretes was first observed. At this place we were overtaken by a spell of cold weather, which remained with us all the time we were on the Dovrefjeld, and did much no doubt to minimize the results of our collecting.

Reaching Domaas on June 30th we remained there till July 2nd. On our way from Braendhaugen we had seen little on account of the rain. At Domaas we found we had got quite into the Alpine country, *Silene acaulis* growing freely along the river side. *Gentiana nivalis* was also observed, together with many other interesting plants already seen lower down. *Lycæna Pheretes* was the butterfly of the waste ground near the river; it was in the greatest abundance, and both sexes were in lovely condition.

We proceeded to Fokstuen on July 2nd. As the road ascends the pines give place to birch, then the birch becomes mixed with *Betula nana*. When the plateau is attained a few miles from Fokstuen the eye has before it a treeless waste of tundra-like barrenness. About the pine limit *Erebia lappona* appeared; this proved to be the commonest butterfly at Fokstuen, and it ranged to a considerable height above the station. *Chionobas Norna* flew on the dry stony slopes of Blaahoe just above the hotel, but it was in poor condition, the wings seldom ragged (because the weather had been fine), but often practically scaleless. It also visited a swampy grassy slope, a favourite haunt of *Argynnis Pales*, of which half a dozen perfect examples were here taken. *S. centaureæ*, *A. Euphrosyne*, *L. Pheretes*, and *L. optilete*, were the only other butterflies taken at Fokstuen, excepting *A. Freija*, of which two examples in better condition than the Saeters-toen ones were seen. On the whole I was disappointed with the numbers of butterflies here, but no doubt the cold weather was partly to blame for this.

Certainly the most noteworthy insect of the Fokstuen region was *Æschna cærulea*. It was everywhere amongst the openings in the birch thickets on the lower slopes of Blaahoe. The days were very cold, usually bright with sunshine in the earlier part but with a bitter wind, which seemed to increase in intensity as the day went on, the sky usually becoming more or less overcast. In the bright sunshine the Dragon-flies flew about rather freely, but later they became sluggish. They eagerly sought the places most exposed to the sun, and particularly loved to rest on the chalky-white bark of the birches, as many as three having been seen so resting close together on one trunk, and in one such case an example was taken with the fingers. Along with *Æ. cærulea*, but much rarer, was *Somatochlora alpestris*.

A number of interesting boreal *Trichoptera* were taken on the Dovrefjeld, especially at the lakes, which are a feature of the Fokstuen locality. These insects will be more fully referred to in the lists which follow. The running waters produced no Caddis-flies at Fokstuen excepting *Apatania*. Nymphs of *Rhyacophila* were found in the Fogsaa. On the whole I believe we were too early for most of the Dovrefjeld *Trichoptera*, certainly so as regards the species attached to streams.

Principally owing to the continued cold, we returned to Domaas on July 6th. Here we found *Erebia ligea* out, and *Argynnis Aglaia* in abundance, but curiously enough *A. Niobe*, which Mr. Champion took here in profusion in 1889, was either remarkably scarce or I failed to find the right locality for it. An addition to my list of *Odonata* was made by the capture of *Æschna grandis*.

On July 9th we started homewards by way of the Romsdal. We had little opportunity of collecting on the way. A large fritillary, likely *A. Aglaia*, was common, and so was *P. Mæra*. At Fladmark one of the blues was in numbers, even eclipsing those of *L. Pheretes* at Domaas.

We remained two days at Molde, where the weather became once more fine and warm. Butterflies and Dragon-flies were fairly abundant, but no additional species of either was taken. The streams were now producing their quota of insect life, and *Rhyacophila nubila*, the Scandinavian representative of our common *dorsalis*, was taken, along with several other interesting *Trichoptera*.

From Molde we sailed direct to England.

Lists of the *Trichoptera*, *Neuroptera-Planipennia*, *Odonata*, and *Rhopalocera* taken, follow.

TRICHOPTERA.

Neuronia ruficrus, Scop., common at Saeterstoen.—*N. lapponica*, Hagen, one ♂ at Saeterstoen, where the species was probably just coming out at the time we left.

Phryganea striata, Linn., taken in great abundance at the lake near Saeterstoen, also frequent at Fokstuen and observed at Christiansand.—*P. obsoleta*, McL., taken at Domaas, and common at the lakes near Fokstuen.

Agrypnia picta, Kol., came out slowly at Saeterstoen, where two ♂ and one ♀ were taken; a long series could have been secured at Molde, but they were past their best as regards condition.—*A. Pagetana*, Curt., a curious form, no doubt Mr. McLachlan's var. *hyperborea*, was found at the Fokstuen lakes; it has both pairs of wings somewhat lanceolate, quite different from the type; the only ♂ taken measures in expanse 20 mm., while the females range from 18 to 24 mm.

Grammotaulius signatipennis, McL., one newly emerged example of this interesting species at Fokstuen.

Limnophilus subcentralis, Brauer, one ♀ at Saeterstoen.—*L. marmoratus*, Curt., one ♂ at Saeterstoen.—*L. stigma*, Curt., one at Saeterstoen and a few at Domaas.—*L. pantodapus* (Wlgr.), McL., five examples, all from the same pond, at Fokstuen; one or two approaching the typical form, the others pertaining to *hyalinatus*.—*L. picturatus*, McL., half a dozen ♀ at Saeterstoen, varying much in the depth of markings.—*L. centralis*, Curt., a few examples from Christiansand, Saeterstoen and Molde.—*L. griseus*, Linn., a few at Saeterstoen.—*L. scalenus*, Wlgr., two newly developed males at Domaas, taken along with *Phacopteryx brevipennis*.—*L. despectus*, Walker, a short series from Saeterstoen.—*L. extricatus*, McL., one ♂ at Saeterstoen.—*L. trimaculatus*, Zett., rather common at the Fokstuen lakes.—*L. fuscicornis*, Rambur, frequent near the Glommen at the end of June, and taken also on the Dovrefjeld.

Phacopteryx brevipennis, Curt.—This interesting species, so little known in Britain, occurred near Domaas at a shallow pond about the level of the river; the pond was overgrown with *Myriophyllum*, *Potamogeton* and *Caltha*, and the sluggish little insect's favourite position was on the stems or leaves of the last named plant, only a few being beaten from pine trees.

Asynarchus fusorius (Wlgr.), McL., two ♂ and one ♀ at Fokstuen; in the ♂ the lower tooth of the inferior appendages is hardly appreciably longer than the upper tooth, and as regards this point the two individuals differ amongst themselves; I think little stress can be laid on this character.—*A. contumax*, McL., was rather common about the smaller collections of water at Fokstuen; it was in fact the most conspicuous representative of the *Limnophilidae*, and it is rather remarkable that it did not figure apparently in the collections made in the locality by Siebke and Schöyen.—*A. cænosus*, Curt., one ♂ at Saeterstoen.

Stenophylax alpestris, Kol., two freshly emerged ♀ at Christiansand.

Micropterna lateralis, Steph., one ♂ at Molde.

Eclisopteryx guttulata, Pictet, one ♂ one ♀ at Domaas.

Apatania.—Examples of this genus were taken at Braendhaugen, Domaas and Fokstuen; indeed, at Fokstuen they were common. Probably at least two species are represented, but unfortunately there are no males, and in the meantime I hesitate to give any names.

Sericostoma personatum, Spencee, one ♀ at Molde.

Brachycentrus subnubilus, Curt., one ♀ at the Glommen.

Beræa pullata, Curt., one ♀ at Domaas.—*B. articularis*, Pict., one ♀ at Saeterstoen is referred to this species with a little doubt.

Beræodes minuta, L., common at a forest brook near Saeterstoen.

Molanna palpata, McL., common at the Fokstuen lakes.

Molannodes Zelleri, McL., with the last and also common; some of the examples are of the form *Steini*.

Leptocerus nigro-nervosus, Retz., one ♀ at the Glommen.—*L. perplexus*, McL., a few examples (♂ and ♀) of this species taken at the Glommen near Saeterstoen; unfortunately they were mistaken for *annulicornis*, and therefore not very zealously sought after.

Agraylea multipunctata, Curt., common at one spot on the banks of a large backwater of the Glommen at Saeterstoen.—*A. cognatella*, McL., one ♂, which I consider to belong undoubtedly to this species, taken at the lake at Lesjeverk, just at the Station.

Oxyethira costalis, Curt., at Lesjeverk, and near Molde.—*O. distinctella*, McL., four males at a lake amongst the hills a few miles from Molde; the discovery of this species, previously known only from Finland, is not the least interesting result of collecting in Norway.—*O. Frici*, Klap., one ♂ (and perhaps also one ♀) from the Glommen; I also regard the finding of this species in Norway as an interesting addition to our knowledge of its distribution.

Hydropsyche guttata, Pict.?, one ♀ from the Glommen.

Philopotamus montanus, Don., on the Mesna at Lillehammer, and at Molde.

Neureclipsis bimaculata, Linn., appeared on the Glommen towards the end of our stay at Saeterstoen.

Polycentropus flavomaculatus, Siet., at Lillehammer and Molde.

Holocentropus dubius, Ramb., at Christiansand, and swarming at the lake near Saeterstoen.—*H. picicornis*, Steph., what I consider three well marked forms were taken; the examples from Domaas are most typical, dusky with reddish-yellow spots, while those from Fokstuen are altogether paler, both in ground colour and in the golden pubescence; from Saeterstoen the examples are nearly uniformly dark golden, almost as in *auratus*, to which species they may really belong.

Cyrnus flavidus, McL., typical examples, or nearly so, from Saeterstoen; one ♂ and one ♀ from Lesjeverk belong to the pallid northern form, which should almost have a distinctive name; this is I believe confused with *C. crenaticornis*, a very pretty insect, and absolutely distinct by the whitish elongate-oval spots in membrane of the areas and apical cellules.

Lype phæopa, Steph., on the Glommen.

Rhyacophila nubila, Zett., near Molde.

Glossosoma vernale, Curt., a few ♀ examples from Braendhaugen are referred to this species with a little doubt; it is rather remarkable that no Scandinavian species of this genus was known to Wallengren.

PLANIPENNIA.

This group was very well represented, at least in individuals. The abundance of *Chrysopa perla* in the woods, especially at Saeterstoen, was to me marvellous, and some of the *Hemerobii* were also rather common, notably *H. pini* at Saeterstoen and *H. nervosus* on the Dovrefjeld.

Panorpa germanica, L., at Saeterstoen, but less common than the next.—*P. communis*, Linn., frequent at Saeterstoen, found also at Domaas; Mr. McLachlan informs me these come near *vulgaris*, Imhoff, the markings not quite so black; all were of this form, the ordinary *communis* being absent.

Rhaphidia xanthostigma, Schum., single specimens of this were frequently found in the net at Saeterstoen; it also occurred at Domaas.

Sisyra fuscata, F., common at Saeterstoen.

Sialis lutaria, L., at Saeterstoen and Fokstuen.

Hemerobius nervosus, F., at Saeterstoen, Domaas, and especially common amongst birches at Fokstuen.—*H. subnebulosus*, Steph., one ♀ at Saeterstoen.—*H. Mortoni* McL., half a dozen in the pine forest between Domaas and Fokstuen, one near the limit of that tree; as it was not observed at all at Fokstuen, it is in all probability

confined to the pine zone.—*H. marginatus*, Steph., one ♀ at Molde.—*H. humuli*, L., one ♀ at Saeterstoen.—*H. stigma*, Steph., one example at Domaas.—*H. pini*, Steph., a long series from Saeterstoen, also taken at Domaas.—*H. nitidulus*, F., common around Domaas.—*H. inconspicuus*, McL., found occasionally at Domaas and Saeterstoen.

Micromus aphidivorus, Schrk., one ♀ at Saeterstoen.

Chrysopa perla, Linn., swarming in the woods at Saeterstoen, also common at Domaas.—*C. ventralis*, Curt., one immature example at Christiansand.—*C. phyllochroma*, Wesm., a few at Saeterstoen.—*C. flava*, Scop., one immature ♀ from Christiansand probably belongs to this species.

ODONATA.

Leucorrhinia dubia, Vand., common at Saeterstoen, and also taken at Molde.—*L. rubicunda*, L., commoner than the last at Saeterstoen.

Sympetrum striolatum, Charp., one recently developed ♀ at Christiansand.

Libellula quadrimaculata, L., Christiansand, Saeterstoen and Molde.

Cordulia aenea, L.—No doubt this was the species seen at Christiansand early in the morning flying round one of the lakes, where later in the day it could not be found; two ♀ were taken in the pine woods close by; it flew in numbers about the large backwater of the Glommen at Saeterstoen, and was also common at the lake near the same place.

Somatochlora metallica, Vand., not uncommon near Saeterstoen, a single ♀ taken flying along the railway; the males were usually found flying over the open water surface, but never at the larger waters, which were usurped by *aenea*; expansion of brooks, larger peat holes, and similar collections of water, were the favoured haunts of *metallica*. *S. alpestris*, Selys, three ♂ at Fokstuen.—*S. arctica*, Zett., one ♀ at Saeterstoen.

Gomphus vulgatissimus, Linn., a single ♀ taken flying along the railway by Herr Wattne on the day prior to our leaving Saeterstoen.

Æschna grandis, L., one or two at Domaas.—*Æ. cærulea*, Ström, a few beautifully coloured examples at Saeterstoen; in the only one caught there the blue is I think more extensive than in any other examples I have seen; at Fokstuen the species was very common; I cannot say with certainty that it occurs at Molde, but I believe I saw it there.—*Æ. juncea*, L., a few at Saeterstoen (perhaps too early), much commoner at Molde.

Pyrhosoma nymphula, Sulz., Christiansand.

Agrion hastulatum, Charp., common at Saeterstoen, taken also at Domaas and Molde.—*A. concinnum*, Johanson, five ♂ and one ♀ of this most interesting little *Agrion* taken at Saeterstoen; first known from Sweden and Finland, it was subsequently found in Siberia.

Enallagma cyathigerum, Charp., not very common, but noticed at Christiansand and Molde.

Lestes Dryas, Kby., just appearing at Saeterstoen.

In addition to the foregoing a large number of *Perlidae* in formalin was brought home. I propose to deal with these insects specially at another time.

RHOPALOCERA.

Papilio Machaon, Linn., not uncommon about Sæterstoen, but past its best.

Aporia crataegi, Linn., Christiansand ; common at Sæterstoen.

Pieris brassicæ, Linn., frequent at Sæterstoen.—*P. napi*, Linn., frequent at Sæterstoen.

Anthracis cardamines, Linn., common at Sæterstoen.

Leucophasia sinapis, Linn., most abundant at Sæterstoen ; seen also in the Romsdal and at Molde.

Colias Palæno, Linn., fairly abundant at Sæterstoen, and I believe seen elsewhere.

Rhodocera rhamni, Linn., two worn examples at Sæterstoen.

Thecla rubi, Linn., swarming near Sæterstoen, but in poor condition.

Polyommatus Hippothoë, Linn., common at Sæterstoen ; taken also at Domaas and Fladmark.—*P. Phlæas*, Linn., Sæterstoen and Fladmark.

Lycæna Egon, W. V., in many localities. I left Norway with the impression that this is one of the most abundant butterflies, but it is just possible I may have confused it with *Argus* ; all the examples brought home are apparently *Egon*.—*L. optilete*, Knoch, a species which we overlooked, with the result that we only brought home odd examples from Sæterstoen, Domaas and Fokstuen.—*L. Pheretes*, Hübn., extremely common at Domaas, rare at Fokstuen, taken also at Braendhaugen.—*L. Icarus*, Rott., common and very fine at Sæterstoen.—*L. amanda*, Schneid., not at all uncommon at Sæterstoen.—*L. argiolus*, Linn., much worn, but many specimens flying about the woods at Sæterstoen.—*L. semiargus*, Rott., common in several localities.—*L. Cyllarus*, Rott., a few rather worn examples near Sæterstoen.

Vanessa c-album, urticæ and *Antiopa*, Linn., all seen at Sæterstoen in hibernated examples, the first being the most frequent.

Melitæa Athalia, Rott., Christiansand ; very common at Sæterstoen, and sparingly in the forest between Domaas and Fokstuen.

Argynnis Aphirape, Hübn., var. *Ossianus*, Hbst., this species was most abundant at Sæterstoen ; it frequented the opener localities of *Chionobas Jutta*, and also the quite open moor.—*A. Selene*, Schiff., found in many localities commonly, but not at Fokstuen.—*A. Euphrosyne*, Linn., found almost everywhere, including Fokstuen.—*A. Pales*, Schiff., not very common, a few in beautiful condition at Fokstuen ; it occurred also above Domaas and not far from Molde.—*A. Freija*, Thunb., a few ragged examples at Sæterstoen, and one or two in better condition at Fokstuen.—*A. Lathonia*, Linn., one or two flying along the railway at Sæterstoen.—*A. Aglaia*, Linn., Sæterstoen, Domaas, the Romsdal and Molde ; rather common.—*A. Niobe*, Linn., scarce at Domaas.

Erebia lappona, Esp., common at Fokstuen.—*E. ligea*, Linn., common and in fine condition at Domaas ; one fresh specimen near Molde.—*E. Embla*, Thunb., common at Sæterstoen.

Chionobas Jutta, Hübn., also common at Sæterstoen.—*C. Norna*, Thunb., not scarce at Fokstuen, but almost utterly useless as specimens.

Pararge Mæra, Linn., a good many seen in the Romsdal and at Molde.—*P. Hiera*, Fabr., common at Sæterstoen.—*P. Megara*, Linn., at Christiansand.—*P. Ageria*, Linn., a worn example at Sæterstoen.

Cænonympha Pamphilus, Linn., common at many places, but not seen on the higher Dovrefjeld.—*C. Tiphon*, Rott., at Sæterstoen, on the great moor principally.

Syrichthys centaureæ, Ramb., a fair series taken at Sæterstoen; worn examples from Domaas and Fokstuen appear also to belong to this species.—*S. malvæ*, Linn., Sæterstoen, common.

Nissoniades Tages, Linn., Sæterstoen and Christiansand.

Hesperia sylvannus, Esp., Sæterstoen, common.

13, Blackford Road, Edinburgh:

October 1st, 1900.

A LIST OF THE *TORTRICIDÆ* AND *TINEINÆ* OF THE PARISH OF BONHILL, DUMBARTONSHIRE.

BY J. R. MALLOCH.

During the past four years I have been collecting *Micros* in this district, and herewith submit the result of my efforts towards the compilation of a list for the locality. I confined myself to the Parish of Bonhill, situate at the southern extremity of Loch Lomond, and consisting of a matter of about twelve square miles of ground, a great portion of which is moorland and hill country. The highest elevation is about 1000 feet. Among the more notable species are *M. palustrana*, *P. rubiginosana*, and *A. Smeathmanniana* in the *Tortricidæ*, and *T. imella*, *D. marginepunctella*, *L. lacteella*, *A. Gædartella*, var. *literella*, and *G. æthiops*. The *Nepticulæ* have, I am sorry to say, been rather neglected, but the *Lithocolletidæ* have been pretty well wrought out. The nomenclature followed in that portion of this group, including *L. sorbi*, is that of Mr. Eustace Bankes' recent monograph (*L. concommitella* and its nearest allies, Ent. Mo. Mag., 2nd ser., vol. x, No. 118—120, 1899). There is still a possibility of adding largely to this list, more especially in the *Tineinæ*, but taking into consideration the small space of ground covered, it is a fairly good show for the "small fry." There is just the possibility that I may be able to continue my collecting for another season on this ground, and if I manage to do so, I shall, if I find any additional species, record them at the end of the season. If I am prevented from pursuing the study of this group here, I hope that the publication of this list will prompt others to supplement my efforts with their own.

TORTRICIDÆ.

Tortrix xylosteana, Linn., common and well distributed.—*rosana*, Linn., very common everywhere.—*heparana*, Schiff., not uncommon, very dark.—*ribeana*, Hb., common and very variable.—*unifasciana*, Dup., occurs on privet, Bonhill

Road, Ladyton, &c., scarce.—*viburnana*, Hb., abundant on Levenside Moor.—*palleana*, Hb., occurs along the Forth and Clyde Railway Embankment, Jamestown, not common.—*viridana*, L., the most abundant species of the genus.—*ministrana*, L., very common in some portions of the district, but more local than most of the foregoing, Crofthugen, Bonhill and Lerse Road; dark variety scarce.—*Forsterana*, Hb., scarce, one specimen at Tullichewan, Alexandria.

Amphisa Gerningana, Sch., common on Levenside Moor, very variable.—*prodromana*, Hb., very common on Levenside Moor in April.

Peronea sponsana, Hb., common and generally distributed, Seldom well marked.—*mixtana*, Hb., ♂s not uncommon in the fall of the year, ♀s commonly in March, April, and May, Levenside Moor.—*Schalleriana*, L., not uncommon, Crofthugen, Quarry Wood, &c.—*comparana*, Hb., common, Crofthugen, Nobleston, Quarry Woods, &c.—*perplexana*, Bar., occurs frequently at Crofthugen, Bonhill.—*comariana*, Zell., Levenside Moor.—*variegana*, Sch., very common throughout the district, dark leaden variety not uncommon.—*ferrugana*, Tr., not uncommon, Crofthugen, in the autumn and also in the spring (hibernated).—*caledoniana*, St., very abundant on Levenside Moor.—*Logiana*, Sch., scarce, Crofthugen.—*aspersana*, Hb., common, Quarry Wood and Levenside Moor.

Rhacodia caudana, Hb., common among willows, dark variety scarce; var. *ochracea*, St., not uncommon, Crofthugen, Nobleston, &c.

Teras contaminana, Hb., common and very variable, generally distributed.

Dictyopteryx Laxlingiana, L., scarce, Quarry Woods and Levenside.—*Holmiana*, L., scarce, Levenside.—*Bergmanniana*, L., not uncommon, Nobleston, Napierston, &c.

Argyrotoza Conwayana, Fb., common, Dumbarton Road, Levenside, and Crofthugen.

Ptycholoma Lecheana, L., common on oak, seldom met with in the perfect state, but the larvæ are easily found.

Penthina corticana, Hb., scarce, Levenside and Crofthugen.—*betuletana*, Haw., common on birch, Tullichewan, Levenside, &c.—*sororculana*, Zell., scarce, Levenside.—*pruniana*, Hb., not uncommon, generally distributed.—*variegana*, Hb., very common, met with everywhere in hawthorn hedges.

Hedya dealbana, Fröl., scarce, Gallangad.

Spilonota trimaculana, Haw., Crofthugen and Dumbarton Road.

Pardia tripunctana, Fb., abundant among roses, generally distributed.

Sericoris cespitana, Hb., Levenside, scarce.—*urticana*, Hb., not uncommon, generally distributed.—*lacunana*, Dup., Nobleston, Anchencarroch, Crofthugen, &c., not uncommon.

Mixodia Schulziana, Fb., very common on Levenside Moor.—*palustrana*, Zell., scarce, Levenside Woods.

Orthotænia antiquana, Hb., scarce, Dillichip.

Cnephasia politana, Haw., common on Levenside Moor, bright varieties.—*musculana*, Hb., common, very variable.

Sciaphila subjectana, Gn., not uncommon, Levenside, Crofthugen, Tullichewan, &c.—*virgaureana*, Fr., met with almost everywhere, very dark.—*pascu-*

ana, Hb., scarce, Levenside Woods.—*octomaculana*, Haw., common along the Forth and Clyde Railway, may be found commonly resting on palings.

Capua favillacea, Hb., scarce, Loch Lomondside.

Clepsis rusticana, Levenside Moor and Nobleston, not uncommon on marshy parts.

Bactra lanceolana, Hb., abundant in marshy parts, varies from unicolorous dark brown to white.

Phoxopteryx unguicella, L., Carman Hill, and Levenside Moor.—*myrtillana*, Fr., Levenside Moor, not uncommon.—*Lundana*, Fb., common on Forth and Clyde Railway, near Jamestown, and on Levenside.—*Mitterbacheriana*, Sch., scarce, Quarry Woods.

Grapholitha ramella, L., very common on birch; var. *Paykulliana*, common and generally distributed.—*nisella*, Clerck, not uncommon in Croftlugen Wood.—*cinerana*, Haw., scarce, Levenside.—*nigromaculana*, Haw., not uncommon and generally distributed, on ragwort.—*subocellana*, Don., very common everywhere on tallows.—*trinaculana*, Don., abundant on elm, Dumbarton Road and Croftlugen.—*Penkleriana*, Fisch., everywhere common on hazel.—*navana*, Hb., not uncommon on holly, Croftlugen, Levenside, &c.—*geminana*, St., common among "blackberry," Levenside Moor and Croftlugen.

Phlæodes tetraquetra, Haw., not uncommon, Levenside, Gallangad, and Croftlugen.—*immundana*, Fisch., Gallangad and Croftlugen.

Hypermezia augustana, Hb., common and generally distributed, on willow. In 1898 I bred a specimen of this species, which when it emerged possessed but three wings, showing no signs of the left hind-wing.

Batodes angustiorana, Haw., scarce, usually taken at rest on walls, Dillielip.

Pædisca bilunana, Haw., not common, Croftlugen.—*rubiginosana*, H.-S., scarce, Quarry Wood and Levenside Moor.—*corticana*, Hb., abundant everywhere.—*ophthalmicana*, Hb., common on poplars, Croftlugen.—*occultana*, Dougl., very common among pine woods, Levenside Moor.—*Solandriana*, L., not common, Croftlugen.—*sordidana*, Hb., very common, Croftlugen, Levenside, &c.

Ephippiphora similana, Hb., not uncommon, Croftlugen, Quarry Woods, &c.—*cirsiana*, Zell., Forth and Clyde Railway, near Jamestown.—*Pflugiana*, Haw., very common on Levenside Moor, &c., larva common in stems of thistles.—*Brunnichiana*, Fröl., very common near Jamestown, Levenside, &c.—*inopiana*, Haw. scarce, Jamestown.—*trigeminana*, St., scarce, Quarry Wood.

Coccyx splendidulana, Gn., scarce, Croftlugen.—*argyrana*, common, Croftlugen.—*tadella*, Clerck, common among firs, Levenside Moor, &c.—*nanana*, Tr., not uncommon, Levenside Moor, along with *tadella*.—*vacciniana*, Fisch., Levenside Moor.

Pamplusia mercuriana, Hb., very common on moorlands.

Retinia pinivorena, Zell., common in pine woods.—*resinella*, L., scarce, Levenside.

Carpocapsa splendana, Hb., one specimen, Alexandria.—*pomonella*, L., not uncommon, about gardens.

Stigmonota coniferana, Ratzb., not uncommon in pine woods, Croftthugen and Levenside Moor.—*perlepidana*, Haw., abundant along the embankments of the Forth and Clyde Railway near Jamestown.—*roseticolana*, Zell., scarce, Quarry Wood.

Dicrorampha Petiverella, L., very common on the F. and C. Railway near Jamestown, flies readily in the afternoon.—*plumbana*, Scop., Levenside Moor, flies in the sunshine.—*herbosana*, Bar., very common, Croftthugen, Levenside, &c., flies principally in the evening, may be seen swarming along the hedgerows.

Pyrodes Rhediella, Clerck, scarce, Hue Glen.

Catoptria ulicetana, Haw., very abundant on furze.—*cana*, Haw., common, Levenside, Woodside, &c.

Trycheris aurana, Fb., common on *Heracleum* flowers, flies in the sunshine, but may be taken at rest on dull days, or in the evening on the flower heads.

Simaethis oxyacanthella, L., very abundant everywhere.

Eupæcilia nana, Haw., common, Quarry Wood.—*atricapitana*, St., scarce, Quarry Wood.—*maculosana*, Haw., scarce, Croftthugen and Quarry Wood.—*angustana*, Hb., abundant on moorlands.—*ciliella*, Hb., not uncommon on the railway banks near Jamestown.

Xanthosetia hamana, L., scarce, Quarry Wood.

Argyrolepis Hartmanniana, Clerck, scarce, Levenside Moor.—*badiana*, Hb., scarce, Levenside.—*enicana*, Dbl., not uncommon, Croftthugen, Levenside, &c.

Conchylis Smeathmanniana, Fb., scarce, Quarry Wood.—*straminea*, Haw., very common and generally distributed.

Aphelia osseana, Scop., not uncommon in marshy parts, Levenside, &c.

Tortricodes hyemana, Hb., common, Cameron and Tulliehevan.

(To be continued).

THE GENERIC NOMENCLATURE OF THE *NOCTUA POPULARIS* OF FABRICIUS.

BY LOUIS B. PROUT, F.E.S.

Mr. McLachlan pointed out a few years ago (Ent. Mo. Mag., xxxii, p. 175) that the name *Neuronia*, Hb., which is applied to the above species in many of our lists, was pre-occupied, and therefore untenable, and that another generic name would be required. Mr. Barrett, however (Brit. Lep., iv, pp. 133, 266), while avoiding the use of the pre-occupied name, has also succeeded in avoiding the necessity of a new one, having applied *Heliophobus*, Boisd., to *popularis* and *cespitis*, and *Ulochlæna*, Led., of which the type is *hirta*, to *hispidus*. This is satisfactory in so far that it corrects Lederer's erroneous restriction of *Heliophobus* to *hispidus*, and for some time I hoped it might prove to be perfectly sound on the historical method of type-

fixation; for Stephens (Syst. Cat., ii, p. 82: Ill. Haust., ii, p. 189) restricts the *Heliophobus* of Boisduval to *popularis* and *leucophæa*, removing *saponariæ* to *Hadena*, and Westwood, in 1840, specifies *popularis* as the type. But some valuable notes on the exact dates of publication of Duponchel's Hist. Nat. Lep., have been kindly placed at my service by Mr. C. Davies Sherborn, F.Z.S., and these show positively that Duponchel's List of Noctuid types (Tom. vii, Pt. 2, pp. 71, 72, March 21st, 1829) appeared *prior* to Stephens' work (June 1st, 1829), and that therefore we must look to him and not to Stephens for the first restriction of the genus; and inasmuch as he selects *saponariæ* for the type, Stephens and Westwood must be ruled "out of order," and *Neuria*, Gn. (with type *saponariæ*), must sink as a synonym before *Heliophobus*.

The question which remains is whether *popularis* be really congeneric with *cespitis*, Fab., with which Mr. Barrett unites it; if so, the correct generic name is either *Tholera*, Hb. (Verz., p. 214), a mixed genus, which by Stephens' *first* use (List Brit. Anim., p. 68, 1850) would become restricted to the type *cespitis*, or, rather, *Charæas*, Steph. [Ill. Haust., ii, p. 108 (1829)], to which Westwood in 1840 assigns the same type, *cespitis*. But if, as I half fear, the two species in question should prove to be *not* congeneric, I believe the introduction of a new generic name for *popularis* will be unavoidable; at any rate, a very thorough investigation of the literature has failed to reveal any existing one which could possibly be applied to it.

NOTE.—Perhaps as I have mentioned *Charæas*, Steph., I ought to add that its application to *graminis*, L., is utterly erroneous; only four years after the foundation of the genus Curtis erected the monotypical *Ccraptyx* for *graminis*, and in 1850 Stephens himself accepted this as a restriction of his *Charæas*.

246, Richmond Road, N.E.:

November 17th, 1900.

ON A SPANISH *BEMBIDIUM* (SUBGEN. *TESTEDIOLUM*).

BY D. SHARP, M.A., M.D., F.R.S.

The species of *Bembidium* allied to *B. glaciale* are of considerable interest, owing to the fact that, in consequence of their peculiar habitat, they are in certain districts completely segregated; so that the individuals of one such segregated area never mix with those from another. These insects dwell about the edges of melting snow-fields, and are only to be found where such snow-fields occur every year, and

are of extent sufficient to ensure that they do not disappear until the warm season is well advanced. In such places these *Bembidium* may be found in great profusion; but I have never heard of a single example being found away from the natural habitat, or at an elevation of less than 6000 feet.

Although these insects are abundant in their native haunts they are not very well represented in collections, and considerable difference of opinion has been expressed as to the number of species, their characters and synonymy. The last edition of Reitter's Catalogue admits five species, two only of which are supposed to occur in Western Continental Europe; the others are from the Caucasus, Turkey and Corsica. The species from the last locality is known I believe only by a single example in the late M. Reiche's collection. As regards the two species of Central Europe, *B. glaciale* and *B. pyrenæum*, much difference of opinion has prevailed. Ganglbauer admits them as valid. I have never found *B. glaciale*, but *B. pyrenæum* I have come across in several localities, viz., Savoy (Albertville), East Pyrenees (Canigou), the Cantabrian Mountains (Reynosa and Picos d'Europa). Notwithstanding this rather wide distribution, I think all the individuals from the localities mentioned are one species; though as I have preserved but a small number of specimens my opinion is not a very strong one.

B. pyrenæum is recorded by Graells (Mem. Com. mapa geol. España, 1855, Zool., p. 32) as occurring in Central and Southern Spain, "Pirineos orientales, Cataluña alta y Andalucía, Granada."

I found specimens on the edges of the large snow-field on the Pico de Peñalara in the Sierra Guadarrama; and also on an alpine meadow in the Sierra Nevada at an elevation of about 10,000 feet. These specimens show well marked differences from the more northern insects, and I think should be separated. The Andalusian examples are the most distinct; the specimens from the Guadarrama approaching distinctly to those from the Cantabrian mountains.

We may assume the Sierra Nevada form to be *B. montanum*, Rambur. It is $4-4\frac{1}{2}$ mm. long, of depressed form, with the thorax very much narrowed behind, and the basal constricted portion longer than in any of the other forms; the elytral punctuation is finer, and almost entirely obliterated at the sides and apex; the antennæ are more slender than they are in the allied forms. Rambur described *B. montanum* from a single individual found, "dans les montagnes de la Sierra Nevada." His description is very poor, and would not lead one to refer it to an ally of *B. glaciale*, though it contains nothing incompatible with the insect I am discussing. It is placed in the

recent catalogues as a synonym of *B. pyrenæum*, so that the name may be applied to the Sierra Nevada species without giving rise to any confusion. Rambur collected I believe in the same spot as that in which the specimens before me were found, viz., near the top of the great valley in the Alpujarras, leading up from Lanjaron to the high ridge in propinquity to the summit of Mulhagen.

The individuals from the snow-fields of the Sierra Guadarrama certainly approach considerably to the Cantabrian form. In size and general appearance they resemble *B. montanum*, but the thorax has the basal constricted portion less elongate. This form may bear the name of *B. carpetanum*. Although I think it probable that if specimens were captured in large numbers all the forms, including *B. glaciale*, would be found to be connected; yet, as the great majority of specimens can apparently be separated, it is well to have distinct names for the forms.

Cambridge: October 16th, 1900.

CHRYSOPA DORSALIS, BURM., A SPECIES NEW TO BRITAIN.

BY ROBERT McLACHLAN, F.R.S., &c.

Amongst some *Neuroptera* collected by Mr. Beaumont in 1900 I find a very good example of this rather striking species, taken at Oxshott, Surrey, on July 7th. It is a fir-frequenting insect, widely spread over Europe, extending to Scandinavia, but possibly nowhere very common. Personally I have met with it only in Belgium and Switzerland, in single examples.

Ch. dorsalis is much like *Ch. perla*, L., and is liable to be confounded therewith. It is of the same form, with much black on the body, and the neuration very much mixed with black. *Ch. perla* can always be distinguished by the distinct blue-green colour of the pale parts, very conspicuous on the wing. In *Ch. dorsalis* the body colour is yellowish-green rather than blue-green, and there is a very broad unbroken black margin on either side of the pronotum; in *perla* this margin is more or less broken up by the pale ground: the sub-costa in the anterior wings is black in *dorsalis*, at any rate in its basal half; it is green in *perla*: the costal area in the anterior wings is much narrower in *dorsalis*: and as a structural character of great importance the tarsal claws are simple in *dorsalis* (as in *phyllochroma*, Wesm., &c.), and much dilated at the base in *perla*: there are also differences in the markings of the head, &c., but the characters above-noticed will suffice to separate the two. A variety in which the femora are more or less piccous has received the name of *pini* (Brauer).

Mr. Beaumont has generously allowed me to retain the specimen. Although many insects of comparatively feeble flight are liable to appear "sporadically" in an unaccountable manner, I think it more likely that *Ch. dorsalis* has been overlooked, on account of its resemblance to *perla*, by the few entomologists who attend to these insects.

Lewisham, London: Dec. 23rd, 1900.

ON THE NEW NOMENCLATURE OF THE FAMILY *CECIDOMYIÆ*,
ADOPTED BY MR. RÜBSAAMEN AND OTHERS.

BY BARON C. R. v. D. OSTEN SACKEN, HON. F.E.S.

During my studies on *Cecidomyiæ* in the United States, I have had occasion to become acquainted with the history of their classification, and when Dr. Karsch, in his Inaugural Dissertation (Revision der Gallmücken, Münster, 1877), made an attempt to change the at that time existing nomenclature, *in virtue* (as he thought) *of the principle of priority*, I was fully prepared to interpose my objection in my Cat. N. A. Dipt., 2d ed., 1878, p. 215, where I said, "that the general adoption of these changes does not seem at all desirable." Dr. Karsch's principal innovation consisted in assuming that Meigen's original *Cecidomyia* (Illig. Mag., 1803) should be considered as a synonym of *Diplosis*, Loew (1850), because the species adopted by Meigen as type in 1803 (*Tipula pini*, Deg.) was a *Diplosis* (Karsch, l. c., p. 11).

Mr. E. H. Rübsaamen, a colleague of Dr. Karsch in the Berlin Museum, adopted this view in his paper, Die Gallmücken des Königl. Mus., &c., in Berlin (Berl. Ent. Z., 1892), and introduced other innovations, the ultimate result of which was that, contrary to the general rule of nomenclature, the generic name of *Cecidomyia* was dropped, and other genera substituted for it: *Oligotrophus*, Latr., *Rhopalocera*, n. g., *Dichelomyia*, n. g., &c. (l. c., p. 326).

To Mr. Rübsaamen belongs the undoubted merit of having introduced an improved method of the scientific study of the *Cecidomyiæ*, and of developing it since with remarkable diligence. It would have appeared invidious on my part to interfere with his success by publishing at that time a criticism of his nomenclature, and I have preferred therefore to inform him privately of my disagreement with him. As he did not accept my opinion, I see no reason why I should (after an interval of eight years) withhold it any longer from the public.

The first steps, both of Meigen and Latreille, in defining the concept of *Cecidomyia*, were merely tentative. In "Illiger's Magazin" (1803) Meigen founded this genus upon De Geer's figure of his *Tipula pini*. The short definition is taken from this figure: "Antennæ porrect, bent upwards, knotty, bristly (knotig, borstig); 24-jointed in the male, 12-jointed in the female." The same definition is found in Meigen's "Klassifikation," &c. (1804). Meigen had never seen the insect, and, as late as 1818, in his System. Beschr., i, p. 99, he mentions

it among the species unknown to him. In the *Klassifikation* (1804), pp. 38—39, Meigen explicitly avows his limited knowledge of the genus, and says about the diagnosis: "Whether all the species partake of these characters I cannot tell; the number of the antennal joints seems to be variable. In general this genus requires more study yet." Under such circumstances MM. Karsch and Rübsaamen had no reason to assume, as they did, that Meigen, in adopting his original definition of *Cecidomyia*, intended to make it permanent, and thus unwittingly forestalled the concept of *Diplosis*, Loew! Meigen would certainly have protested against such an assumption, and would have referred to his principal work, in which he again acknowledges his uncertainty about the number of the joints of the antennæ. In his *Syst. Besch.*, i, p. 93, the diagnosis says: "Antennæ porrect, *many-jointed*, joints separated;" the detailed characterization which follows adds: "The number of joints is difficult to determine, because they are very easily damaged in captivity. I have generally found 24 in the male and only 12 in the female; *Cec. ribesii* ♂ has 12-jointed antennæ."

In presence of such positive statements about the uncertainty of Meigen in the matter of the number of the joints of the antennæ, the expression of Mr. Rübsaamen, *that Meigen had become unfaithful to himself* ("weil Meigen sich selbst später untreu wurde") is not well chosen! (*Comp. Berl. E. Z.*, 1892, p. 325, line 14 from top).

The first mention of *Cecidomyia* in Latreille's publications occurs in the *Dictionn., &c.*, of Déterville, 1st ed., vol. xxiv, 1804, p. 107, and in the *Hist. Nat. des Crust. et des Ins.*, vol. xiv, 1805, p. 292. The definition is the same in both publications: "Antennes filiformes à articles presque égaux, globuleux, velus; trompe saillante; ailes couchées horizontalement sur le corps. *Tip. pini*, Deg." The new genus *Oligotrophus* is introduced at the same time; its definition is as follows: "Trompe point saillante, antennes moniliformes. tête transversale; je rapporte à ce genre la *Tipule* des galles du Génévrier de De Geer, vi, tab. 25, f. 7, 8." That the definitions of both genera were based merely upon De Geer's figures is evident. Winnertz's (*Stett. Ent. Z.*, 1854, p. 324) supposition, that Latreille knew De Geer's *juniperina* in nature seems to me very improbable.

In Latreille's first matured work on *Diptera*, the *Genera*, &c., vol. iv, p. 252 (1809), he gave up his *Oligotrophus* and introduced the genus *Cecidomyia*, as follows:—

Gen. 633.—*Cecidomyia*, Latr., Illig.—*Tipula*, De Geer.—*Oligotrophus*, Latr.—*Chironomus*, Fabricii.

The *Cecidomyia*, Latr., Illig., means here of course, Latreille, Meigen

in Illiger's Magazin (1803). Upon this follows a descriptive notice of the characters of the imago, a few words about the larvæ, pupæ and galls, and a list of the species previously described. The number of joints of the antennæ is stated thus:—"illorum numero pro sexu vario" (12 in feminis, 24 in masculis, Meigen), which proves that Latreille, in this case, relied on Meigen's "Klassifikation" (1804).

This passage of Latreille (1809) became the starting point of the generic concept, *Cecidomyia*, MEIGEN-LATREILLE, which, with the improvement in its definition introduced by Meigen in his principal work of 1818, has prevailed in Dipterology up to the time when Rondani and Loew began to subdivide the genus. This *essential fact has been entirely overlooked* by MM. Karsch and Rübsaamen, or, at least, their nomenclature is in entire disagreement with it. (Meigen, in his work of 1818, had introduced in the definition the very useful character, "first joint of the tarsi very short").

Rondani has maintained this concept, and, in his very first work on *Cecidomyia* (Memoria Seconda, &c., 1840, p. 12), in the enumeration of the genera, we find: Genus V, *Cecidomyia*, MEIGEN-LATREILLE, after which Rondani goes on with his own subdivisions. Mr. Rübsaamen has not noticed this passage, and has misinterpreted Rondani (in his paper of 1892, p. 324, at bottom), when he praises him for having acted with *perfect correctness*, and for having shown respect to Meigen's memory ("pietätvoll gehandelt") in restoring the genus *Cecidomyia* in the *original meaning* of Meigen, that is, as having 24 antennal joints in the male and 12 in the female, and being therefore a *Diplosis* in the sense of Loew. (The quotation from Loew's Progr., 1850, p. 20, adduced by Rübsaamen in the same place, p. 325, at top, is correct as far only as it refers to *Cecidomyia*, Rond., sensu stricto, in his Mem., 2^{da}, pp. 13—15 [1840], and not to Genus V, *Cecydomyia*, Meig., Latr., on p. 12 of the same paper).

Thus far I have shown that Mr. Rübsaamen's new nomenclature has been based upon an entire misunderstanding of Meigen's, Latreille's and Rondani's publications on the subject.

In regard to Rondani especially, it is difficult to understand how Mr. Rübsaamen has not perceived in that author's papers on *Cecidomyia* there is not a single allusion to the concept of the principal genus which he attributes to him. On the contrary, in the *Stirpis Cecidomyidarum genera revisa* (Atti, &c., di Milano, vol. ii, 1861), published eleven years after Loew's Monograph of 1850, the genera *Cecidomyia* and *Diplosis* are characterized as usual (on p. 12): *Cecidomyia*, under F, is mentioned as having the *same* number of antennal joints in both

sexes; and *Diplosis*, under FF, as having *half* the number of joints in the female: "feminâ numero circiter duplo minori articulis masculorum." I have searched in vain for any reference to Meigen's Klassifikation (1804) in Rondani's works, and I am inclined to believe that he never possessed, nor consulted, that now rather rare volume.*

It is so many years since I have given up the study of *Cecidomyiæ*, that it would be impossible for me to propose now any improvement in the present nomenclature of the Family. I would only venture to suggest that the concept *Cecydomyia*, Meigen-Latreille, in its main features, was a very natural and useful generic concept, and should have been preserved, especially in view of the mnemonic requirements of classification. On this subject, and on the mischief of unnecessarily multiplying genera, I have expressed my opinion in the Berl. Ent. Z., 1895, p. 160, at bottom, where I have said, "The true end of classification is an easier survey of affinities, a temporary aid to memory. In space and time all divisions become convergent and finally confluent." What I would propose now would be to restore, as far as possible, the original concept of *Cecidomyia* of Meigen and Latreille, and to consider the very numerous new genera, since formed at its expense, as *subgenera*.

MM. Karsch and Rübsaamen have done so much useful work since their beginnings, that I hope they will not take in bad part the publication of a criticism which I have kept *in petto* for thirty years.

Heidelberg: January, 1901.

ABERDEENSHIRE DIPTERA.

BY THE REV. E. N. BLOOMFIELD, M.A., F.E.S.

Mr. J. Mearns, of Aberdeen, has kindly sent me for confirmation or determination the greater part of his collection of *Diptera*; among them are some very interesting species, I therefore now give a selection from them.

In the "Scottish Naturalist" for July, 1883, there is a good list by Mr. W. Armston Vice, M.B., of *Diptera* taken by himself in the north of Scotland, principally near Aberdeen, and also a few taken by Mr. Verrall in 1870 near Aberdeen, and at Braemar.

Most of Mr. Mearns' species are the same as are contained in this list, but there are a good number of additions, some very common

* The bookseller Hoepli, in Milan, purchased Rondani's library after his death, and I then acquired several works which belonged to it, among others the complete collection of Rondani's *hand-copies* of his own publications. Of this collection I have made a present to the Italian Entomological Society in Florence. I do not remember noticing Meigen's Klassifikation (1804) in Hoepli's Catalogue at that time.

species, and others of considerable interest. The very common species, such as *Homalomyia canicularis*, &c., are not now included, and those species which are already recorded near Aberdeen in Mr. Vice's list I have marked *.

All the following species were met with at no great distance from Aberdeen, the neighbourhood of Banchory, which is about 25 miles to the west, being the most distant.

LIMNOBIDÆ.—*Symplecta punctipennis*, Mg., Banchory; *Phalacrocer a replicata*, L., White Stripes, near Aberdeen.

TIPULIDÆ.—**Dolichopeza sylvicola*, Curt., Banchory; *Tipula Diana*, Mg., White Stripes; this species and *P. replicata* were several times bred.

TABANIDÆ.—*Chrysops relictus*, Mg., Loch Skene; *Theriotectes? solstitialis*, Mg., Banchory; a very variable series, perhaps not all the same species. *Tabanus cordiger*, W., and *Atylotus fulvus*, Mg., Banchory.

LEPTIDÆ.—**Symphromyia crassicornis*, Pz.

SYRPHIDÆ.—*Paragus tibialis*, Flin., and *Chilosia sparsa*, Lw., Banchory; *Pyrophæna ocyms*, F., Muchals, Kineardine, Stain; *Didea intermedia*, Lw., **Syrphus punctulatus*, Ver., *S. compositarum*, Ver., and *S. grossulariæ*, Mg., all near Banchory, *S. topiarius*, Mg., Invercannie, near Banchory; the specimen of this very rare species is now in the collection of the Edinburgh Museum of Science and Art; *S. annulipes*, Zett., *S. tricoloratus* and *S. albostrigatus*, Flin., Banchory; **Arctophila mussitans*, F., Countess Wells and Hazelhead; *Eristalis sepulchralis*, L., Aberdeen Links; **E. rupium*, F., Loch Skene and Banchory; *Helophilus trivittatus*, F., and *H. hybridus*, Lw., Aberdeen Links; **H. lineatus*, F., Bishop's Loch; *Xylota florum*, F., near Aberdeen; *Merodon equestris*, F.; **Chrysotoxum arcuatum*, L., Banchory.

CONOPIDÆ.—*Conops ceriiformis*, Mg., Invercannie; this specimen is now in the Edinburgh Museum collection; *Sicus ferrugineus*, L., Invercannie.

TACHINIDÆ.—**Echinomyia grossa*, L.

MUSCIDÆ.—*Calliphora grælandica*, Zett., Aberdeen Links, not uncommon.

ANTHOMYIDÆ.—*Limnophora compuncta*, W., and *Drymeia hamata*, Flin., Loc. Skene.

CORDYLURIDÆ.—*Hydromyza Falleni*, Selin., Hazelhead, and *Scatophaga villipes*, Zett.

SCIOMYZIDÆ.—*Dryomyza anilis*, Flin.; **D. flaveola*, F.; *Tetanocera ferruginea*, Flin.; *T. robusta*, Lw., Braes of Don; *T. reticulata*, L., Hazelhead.

ORTALIDÆ.—*Pteropæctria frondescentie*, L., Invercannie.

TRYPETIDÆ.—*Trypeta onotrophes*, Lw., *Urophora solstitialis*, L., and *Tephritis miliaria*, near Banchory.

LONGICORIDÆ.—*Pallopia umbellatarum*, F., and *P. arcuata*, Flin., Invercannie.

OPOMYZIDÆ.—*Baliophora combinata*, L., Invercannie.

Several of the above species have not, I think, been hitherto recorded from Scotland, as for instance, *Tabanus cordiger*, W., of which a specimen is in the Edinburgh Museum collection.

Cerastis ligula, Esp., at Poyntzpass, Ireland.—When the ivy came into blossom in October last I began to look out for moths, but finding not many at the ivy I tried sugaring some trees down my avenue, and by this means obtained some extra specimens. Among my captures, both at ivy and at sugar, was a *Cerastis*, which at first I thought to be *vaccinii*, L., but becoming doubtful I referred the specimens to Mr. Barrett, who kindly examined them for me, and then it appeared that I had captured *C. ligula* as well as *C. vaccinii*. This capture is of interest as *ligula* does not appear to be at all common in Ireland. Moths of any kind were far from plentiful, and only on one night were there more than half a dozen to be captured.

Besides *C. ligula* I took a single specimen of *Agrotis saucia*, Hüb., on November 1st at sugar; *Scopelosoma satellitia*, L., at ivy and sugar, three forms, viz., with reniform stigma white, orange, almost obliterated being the same colour as the rest of the wing; *Calocampa exoleta*, L., a good many at sugar; *Himera pennaria*, L., several flying at ivy. I did not notice any of them settled on the blossoms, but perhaps I did not give them time. The ivy grows on the gable of my house, and I place a ladder against the wall and then mount with net and lantern, moving the ladder as I require. It is curious that though there was ivy in blossom in the hedges of my garden, yet there were no moths about it at all. I noticed also that I got most moths about ten feet from the ground.—W. F. JOHNSON, Acton Glebe, Poyntzpass: December 7th, 1900.

Re-appearance of Gelechia malvella in the London district.—It afforded me great pleasure to find this insect in fair numbers in my garden last July, as hitherto diligent search, both for larva and imago, had proved fruitless.

Stainton, in "*Insecta Britannica*" (vol. iii, p. 106), refers to the moth as "a common species in gardens," and in the "*Manual*" (vol. ii, p. 330) adds, "a pest in the larva state." This, no doubt, was perfectly accurate when these works were written, but in recent years the species has become greatly restricted in its distribution, owing to the hollyhock, which was formerly found in most gardens, having gone out of favour by reason of its being attacked and killed by the well-known disease. My good fortune in taking this moth is most likely due to my neighbours having the last two or three years gone in extensively for *Althæa*. I had hoped to obtain a supply of larvæ in the autumn, but the plants were cut down and burned before an opportunity occurred to bespeak the seed heads.—B. A. BOWER, Eltham Road, Lee, Kent: January 12th, 1901.

Spilodes sticticalis in North-West Kent.—The occurrence of this species in this part of Kent is, I think, worthy of notice, as I can find no published account of its capture in it. There is a rumour that at some remote time it was found in the *luctuosa* field by Darenth Wood, but confirmation is not forthcoming. My captures, which number four, were late ones, being made from August 29th to September 6th, 1900, and over the country lying between Halstead and Wilmington.—Id.

Anticlea sinuata in Devon.—With reference to Mr. George T. Porritt's interesting notice in last month's Ent. Mo. Mag. of captures in South Devon, and his query as to whether the occurrence of this species is not new to the county, I

beg to say that some years ago, between 1865—9, I think, when I was in H.M.S. "Britannia," at Dartmouth, I took this moth upon two occasions and in widely different localities—once near Slapton and again near Buckfastleigh.--GERVASE F. MATHEW, Dovercourt, Essex : *January 4th*, 1901.

Wharfedale Trichoptera, &c.—During a week's visit to Grassington-in-Wharfedale—a lovely district reached by a nine to ten miles' drive from Skipton—from June 11th to 18th last, I secured on the River Wharfe *Odontocerum albicorne*, *Agapetus comatus* and *Glossosoma vernale*, three species of *Trichoptera* hitherto unrecorded for Yorkshire. Of these, *A. comatus* occurred in profusion in trees along the riverside; but the other two appeared to be much rarer. Two other interesting species which also occurred in great abundance were *Ecdiapteryx guttulata* and *Lasiocephala basalis*, the former at dusk flying in almost a continuous stream up from the river over Grassington Bridge, whilst in the daytime almost every tap of the beating stick brought out *L. basalis* in plenty from the bushes on many parts of the river side. Among numerous other species also occurred *Drusus annulatus*, *Sericostoma personatum*, *Leptocerus nigro-nervosus*, *L. annulicornis*, *Tinodes wænieri*, and *Polycentropus flavomaculatus* in greater or smaller numbers. In the beautiful Grass Wood, which rises from the bank of the river, the following *Lepidoptera* were noted:—*Tenusia cambricaria*, *Tenilia maculata* (common), *Melanthia albicillata* (common), *Cymatophora duplicaris*, *Ennychia octomaculata*, and numerous other species.—GEORGE T. PORRITT, Crosland Hall, near Huddersfield : *January 3rd*, 1901.

Æschna mixta, Latr., at Appledore, Kent.—Two ♂ and one ♀ of *Æ. mixta* were taken by Mr. Beaumont at Appledore, near Ashford, on August 22nd and 23rd and September 10th, respectively, 1900. This species has been so widespread, and often common in the South of England this year, as to induce one to think that immigration may have had something to do with its appearance. The other *Odonata* taken by Mr. Beaumont in the same locality are unimportant, but are here enumerated for the sake of local data. They are:—*Sympetrum striolatum*, Chp., *S. sanguineum*, Müll., *Æschna cyanea*, Müll., *Ischnura elegans*, V. d. L., and *Lestes sponsa*, Hansm.—R. McLACHLAN, Lewisham, London : *December 23rd*, 1900.

Cæcilius atricornis, M' Lach., at Appledore, Kent.—Of this semi-aquatic Psocid Mr. Beaumont found two examples, both apparently males and slightly immature, on September 8th last. The life-history of this species would probably prove interesting, for it frequently occurs in localities which for part of the year, at any rate, must be under water.—ID.

Micromus aphidivorus, Schrk. (*angulatus*, Steph.), at Oxshott.—Mr. Beaumont captured a fine example of this at Oxshott on October 12th, 1900, which seems a late date. Although widespread in this country the species seems to almost always occur singly. There may be some doubt about the application of the name "*aphidivorus*." It was Hagen who first introduced it as applied to this species (*cf.* Ent. Mo. Mag., ii, p. 59). But later on (*Proc. Bos. Soc. N. H.*, xxiii, p. 281) he says that after a careful examination of Schrank's description he is "convinced that *H.*

aphidivorus is not this species," and he uses the specific name *angulatus*, Steph., which is the next oldest. Here, then, is a dilemma. I have not studied the subject, and in continuing to use "*aphidivorus*" I do so without prejudice, and if I were writing a new monograph of the Brit. *Planipennia* it is quite possible I should use "*angulatus*," which is certain, according to the type specimen.—ID.

Mantis religiosa, L., naturalised in the State of New York.—Bulletin 185 of the Cornell University Agricultural Experiment Station (November, 1900) consists of an account by Prof. Slingerland of the discovery of *M. religiosa* in considerable numbers near Rochester, N.Y. When first discovered in 1899 it was thought to be identical with some species indigenous in the southern States. But as time went on doubts arose, and it was eventually submitted to Mr. Scudder, who traced its identity with the European insect. The species seems quite at home and stands the winter of the State of New York. No one knows exactly how it came there, but the district is a great nursery centre and imports large quantities of plants from Europe, especially from France, so it was probably introduced in that way. As the insect is considered highly beneficial, it is suggested that steps be taken to preserve it, and especially to discourage its capture and destruction by children.—EDS.

The pale variety of Bombus Smithianus, White, in Scotland.—Referring to Mr. E. Saunders's instructive article on this bee in this Magazine for 1896 (pp. 275-277), I find that the variety having the hairs on the under-side of the body, and on the legs pale yellow instead of black, is quite a common insect in Scotland, and is the *Bombus* which has hitherto stood in Scottish collections and lists under the successive specific names of *senilis*, *cognatus*, and *venustus*. I have compared males taken by myself near Kingussie (Inverness-shire), Aberfoyle (S.W. Perthshire), and Elvanfoot (Lanarkshire), and also specimens from the Perth district, Dumbartonshire, and Kirkcudbrightshire, kindly sent me by Messrs. Rodger, Malloch, and Service, with males of typical *Smithianus* from Shetland, and find them to all appearance identical, which Mr. Saunders, who has been good enough to examine several of them for me, says they undoubtedly are. Besides these males I have females and workers from the same and other localities, which I cannot but regard as belonging to the same form, though the absence of any known structural difference between ♀ and ♂ of *Smithianus* and those of *venustus* precludes, in the meantime, absolute certainty of identification. Specimens clearly, I think, of this form from Scotland were referred by Smith to his *senilis* (afterwards *venustus*), for we read in the first edition of his "Catalogue" (p. 215), "Females (of *senilis*) from Perthshire are exceedingly bright in colouring," and ♀ and ♂ from Moray were so named by him for Dr. Gordon (Scot. Nat., 1887, p. 177). There is no evidence, however, that he ever examined a ♂. Had he done so the similarity of the "armature" to that of *Smithianus* is not likely to have escaped his notice. *Venustus*, as now restricted, seems to be a more southern insect, and the question arises, does it occur in Scotland? Only the capture of a ♂ can settle the point conclusively. Now that this pale race of *Smithianus* is likely to be much in evidence, some distinctive name for it (*B. Smithianus*, var., or race, *pallidus*, say) would be a decided convenience. That the names *senilis* and *cognatus* are out of court has been clearly explained to me by Mr. Saunders.—WILLIAM EVANS, 38, Morningside Park, Edinburgh: January 10th, 1901.

Scottish Aculeates.—With reference to Mr. A. A. Dalglish's interesting records of *Aculeate Hymenoptera* in the West of Scotland, published in the January number of this Magazine (*ante* p. 7), I would point out that *Odynerus spinipes*, L., and *Halictus tumulorum*, L., are both in Mr. T. M. McGregor's list of Perthshire *Aculeates*, published a number of years ago in the "Transactions of the Perthshire Society of Natural Science" (see vol. i, pp. 72, 105). The first-named species had even then, however, been ten years on the Scottish list from Banffshire (Trans. Nat. Hist. Soc., Aberdeen, 1878, p. 47). In the Forth district I have taken *H. tumulorum* in abundance at Dunbar and Longniddry. A record by Mr. Saunders of *Pompilus unguicularis*, Thoms., from Golspie, appeared in this Magazine for November last.—ID.: *January 7th*, 1901.

Chrysis Ruddii, Shuck., in Scotland.—In June, 1893, I secured an example of this *Chrysid* near Aviemore (Inverness-shire), and have since taken others at Kinghorn and Inverkeithing (Fife), and Dunbar (East Lothian); identification confirmed by Rev. F. D. Morice. I have not seen any previous record of the species from Scotland.—ID.

Bembex rostrata, L., in Jersey.—In answer to Mr. W. Evans' enquiry if *Bembex rostrata* has ever been recorded from the Channel Islands, I may say that I have never taken it in Guernsey, but the name occurs in a list of Jersey insects in the collection of Mr. Piquet, named by the late Francis Walker, Esq., F.L.S., in 1860. This list was published in Ansted and Latham's "Channel Islands" (2nd Edit., 1865).—W. A. LUFF, Mount Pleasant, Guernsey; *January*, 1901.

Diptera and Nomadæ at Halictus burrows.—On June 4th I visited a colony of *Halictus nitidiusculus* in the river bank at Bitton, and caught seven of the little bees as they entered or quitted the burrows. Three of these proved to be females of the *Halictus*, and four were *Nomada furva* ♀. A number of grey flies were also flying around the burrows, occasionally entering for a short distance, and on several occasions I noticed that they backed into the hole "tail first." Whether this was for oviposition I cannot tell, but it seemed like it. The Rev. E. N. Bloomfield very kindly sent these flies to Mr. Verrall, who pronounces them to be *Phorbia albescens* and *Phorbia impudica*. The *Aculeates* were kindly determined for me by Mr. E. Saunders.

When I visited the same colony on a previous occasion in August I found that a large proportion of the *Halicti* were stylopized. These industrious little bees seem much persecuted.—H. J. CHARBONNIER, Redland, Bristol: *January*, 1901.

Further Note on the habits of Orochares angustatus, Er.—Apropos of Canon Fowler's notice of the occurrence of an example of this insect in Britain (Ent. Mo. Mag., xxxvi, p. 286), the following note will interest British Coleopterists:—Dr. H. Krauss and Dr. K. Penecke (Wien. ent. Zeit., 1900, p. 239) record the capture of number of specimens at Marburg in December, 1899, in "frozen human excrement."—G. C. CHAMPION, Horsell, Woking: *January 9th*, 1901.

Myrmus miriformis near *Bude*.—Mr. E. Sannders, in his work on the *Hemiptera*, says he has no western locality for *Myrmus miriformis*, Fall. It may be of some interest to record that I captured a pair, ♂ and ♀, both with the undeveloped form of the elytra, the ♂ with the interrupted central black stripe on the abdomen, which was absent in the ♀, on July 3rd, 1896, near Bude, Cornwall.—G. C. BIGNELL, Saltash: December 18th, 1900.

Obituary.

Philip Crowley, F.L.S., &c., died at his residence, Waddon House, Croydon, on December 20th, aged 63. He came of a Quaker family, long engaged in the brewing industry, and was born at Alton, in Hants, on August 28th, 1837. He was educated privately, and soon became a partner in the well-known brewing establishments at Alton and Croydon. Mr. Crowley took a very warm interest in all subjects connected with Natural History, and was a generous patron in such connections. As an entomologist he was known as the possessor of one of the finest collections of exotic butterflies, and he published a few short papers on the subject, but literary work was not congenial to him. He also had a magnificent collection of birds' eggs, and, in fact, of several other departments of natural objects. He was a Fellow of the Linnean, Zoological, and Entomological Societies, and did much to further the interests of the Croydon Microscopical Club. He also devoted much time and money to horticultural pursuits, and at the time of his death was Treasurer of the Royal Horticultural Society, and Master (for the second year) of the Gardeners' Company. He was also Chairman of the Fruit Committee of the R.H.S. His somewhat sudden death came as a surprise to many friends, and in many respects it will be difficult to fill the various honorary—but laborious—posts he held. Mr. Crowley had been long a widower and leaves no family.

Lord Dormer, F.Z.S., F.E.S.—John Baptiste Joseph Dormer (12th Baron Dormer), of Grove Park, Warwick, died suddenly at Tewkesbury when on a visit on December 22nd last. He was born on May 22nd, 1830, and for many years was in the Army (Captain Grenadier Guards, &c.), serving in the Crimea and India. He came of an old Roman Catholic family, and many of the preceding Barons were also military men. The title was created in 1615, but for several years was practically in abeyance on account of religious difficulties. The late Baron had a strong taste for entomology and formed a collection of *Cicindelidae*. He travelled much, and outside his speciality his captures were given to friends, the late H. W. Bates benefiting amongst others. He joined the Zoological Society of London in 1882, and the Entomological in 1886. He occasionally attended the meetings of the latter Society, but was retiring and known to only few. He leaves no family, and is succeeded in the title by a nephew.

John Henry Leech, B.A., F.L.S., &c., died prematurely at his residence, Hurdcott House, near Salisbury, on December 29th, 1900, in his 39th year. He was the eldest son of the late John Leech, Esq., of Gorse Hall, Duckinfield, Cheshire, and after having completed his preliminary education was sent to Cambridge, where he graduated in due course. He may be said to have devoted his life to entomology.

In 1886 he published an illustrated work on the British *Pyralidæ*, which, however, did not meet with universal approbation. He travelled much; firstly, we think, to the Amazons, then to the Canaries, and he made two or three long journeys to the East, commencing with Cashmere in 1887, and subsequently to China, Japan, and Corea, making huge collections. He also sent out intelligent collectors to China, Japan, and Northern India, and thus further increased his stores of Eastern *Lepidoptera*, &c. The greater part of these collections he worked out with the assistance of Mr. South, and the volume of the "Transactions of the Entomological Society of London" for 1900 owes its unusual bulk mainly to two large instalments of his catalogue of the *Heterocera* of Northern China, Japan, and Corea. In 1890 he acquired the "Entomologist" and the services of Mr. South as editor, with a long advisory committee, intending to devote it mainly to the description of the new species collected by himself and others in the East. The speedy abandonment of this idea and the events that followed are now matters of history. That Mr. Leech, during his short life, did much to further the cause of entomology is not to be denied, yet one cannot help regretting that he did not do more. Latterly he had been in bad health. He leaves a widow and two young children to mourn his loss.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: November 19th, 1900.—Mr. R. C. BRADLEY in the Chair.

Mr. Dixon, of 149, Edmund Street, Birmingham, was elected a Member of the Society.

Mr. H. Willoughby Ellis showed *Melasoma arceum* from Cannock Chase; *Crioceris asparagi*, from Bromsgrove (where it occurred in thousands); *Sinodendron cylindricum*, from Knowle; *Pyturus sambuci*, from Haywood; *Sitones cambricus*, from Knowle; also a few *Lepidoptera* from Knowle. Mr. G. W. Wynn, a number of *Lepidoptera* taken at sugar in his garden at Hampton-in-Arden this year. He sugared regularly all the summer and found July the best month. *Triphæna janthina* was especially abundant, often five or six being found on a single patch of sugar; also *T. interjecta* occurred in two examples, and amongst other things were *Xylophasia sublastris*, *X. hepatica*, *Caradrina morpheus*, *C. alsines*, *C. cubicularis*, *Agrotis nigricans*, *A. tritici*, *A. corticea*, *Noctua umbrosa*, *Xanthia gilvago*, *Tethea subtila* (one), *Cosmia affinis* (common), *Catocala nupta* (one), *Mania maura*, etc. Mr. A. H. Martineau, the following *Hymenoptera*, all taken at Solihull this year:—*Crabro clavipes*, *C. tibialis*, *Trypoxylon clavicornis*, and *Stigmus Solskyi*. Mr. R. C. Bradley, a number of insects of various orders collected during a four days' trip to the Stroud district of the Cotswolds at Whitsuntide this year. Amongst others were the following *Diptera*:—*Isopogon brevisrostris*, *Platystoma seminationis*, *Xanthogramma ornata*, *Trixa astroidea*, and *Hyalomyza pusilla*: and *Hymenoptera* as follows:—*Andrena cingulata*, *Osmia xanthomelana*, *O. bicolor*, *O. carulescens*, and *O. aurulenta*; *Nomada flavoguttata*, *N. lateralis*, etc. Mr. Colbran Wainwright showed his collection of the families *Ortalidæ* and *Trypetidæ*, including several interesting species taken this year: *Trypeta cornuta*, *T. tussilaginis*, and *Tephritis bardana*; long series from West Runton, Norfolk, where all three species

were very abundant, *Urellia eluta* and *stellata*, *Tephritis tessellata*, *Ensisia sonchi*, *Rivellia syngenesia*, *Spilographa alternata*, &c., all from West Runton, *T. tessellata* being absent from Mr. Verrall's list, and *U. eluta* only in italics; *Ceroxys crassipennis*, and *Platystoma seminationis*, nice series of each from near Stroud, Gloucester, &c., &c.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: *December 10th, 1900.*
—Mr. E. J. BURGESS SOPP, Vice-President, in the Chair.

Dr. Herbert Dobie, of Chester, contributed a paper entitled "Two and a half Years' Observations of the *Macro-Lepidoptera* at the Chester Electric Lights," which was read by the Secretary. In it Dr. Dobie states that he has been able to add to the local list some sixteen species not hitherto recorded for Chester. This he attributes almost entirely to the attraction of the electric light, as several keenly enthusiastic entomologists have lived in Chester and have never had the good fortune even to see any of these species until this light came into use. The species are:—*Sphinx ligustri*, *Zeuzera asculi* (four), *Lithosia quadra*, *Drepana hamula*, *Agrotis lunigera*, *Telhea retusa*, *Cosmia affinis*, *Phorodesma bajularia*, *Cheimatobia boreata*, *Coremia fluviata*, *Eupithecia*—? *Hypena crassalis*, *Pyralis glaucinalis*, *Acentropus niveus*, and *Ephestia splendidella*. Amongst the occasional captures were *Acronycta alni*, *Nemoria saponaria*, *Hydrecia petasitis*, and *Eurymene dolobaria*. The paper was partly devoted to an endeavour to solve the problem of the appearance of females only of *Hepialus humuli* and *Fidonia pinaria* at the lights. The point was afterwards discussed by Messrs. Pierce, Freeman, Webster, and Wilding. Dr. Cotton proposed a vote of thanks to Dr. Dobie, which was seconded by Mr. Wilding and carried unanimously. The following exhibits were made:—*Trigonogenius globulum*, by E. J. Burgess Sopp. *Carabus arvensis*, *Bembidium Clarki*, and *Corymbetes quercus*, by Mr. R. Wilding. A splendid series of *Agrotis Ashworthii* reared from the egg in eight weeks, by Mr. R. Tait. Species of the genus *Dianthæcia*, showing geographical variation, by Mr. F. N. Pierce. *Astata stigma* from North Wales, *Oxybelus mucronatus*, *Ceropales maculatus*, *Cerceris arenaria*, *Crabro cribrarius*, *Sapyga 5-punctata*, and *Psammophila hirsuta*, by Mr. Willoughby Gardner. *Lepidoptera*, *Coleoptera*, and *Neuroptera* from Delamere Forest, by Dr. Cotton. *Lepidoptera*, including a fine black form of *X. polyodon*, taken in Liverpool, by Rev. T. B. Eddrup. Varieties of *Abraaxas grossulariata*, the two best being (A) a specimen having the blackish markings almost covering the insect, very little white, and no trace of yellow, and (B) a specimen with ground colour yellow instead of white, by Mr. Tipping.—FREDERICK BIRCH, *Hon. Sec.*

ENTOMOLOGICAL SOCIETY OF LONDON: *December 5th, 1900.*—Mr. G. H. VERRALL, President, in the Chair.

Mr. Jacoby exhibited specimens of *Hypocephalus armatus* from Bahin and *Chrysomela salisburyensis*, a new species, from Mashonaland. Mr. Bower, a specimen of *Spilosoma montanum*, an Asiatic species, bred from a larva found at the beginning of September, 1897, feeding on birch on a moor near Paisley. The larva hibernated and spun a cocoon the following spring, not feeding after hibernation.

Moth bred June 2nd, 1898. The larva was given to Mr. Wm. Smith, of Paisley, by a friend who found it on a moor used by the Glasgow Corporation for rubbish, the supposition being that an ovum or larva had been introduced with the refuse matter. Mr. McLachlan, a female of a Dragon-fly of the genus *Tetracanthagyna* from North Borneo, similar to *T. vittata*, McLach., but with a very broad ante-apical fascia on the wings, and with some asymmetrical markings. He said there might be a question as to the specific identity or otherwise of the insect. And there was also the question as to whether the insect described by Mr. C. O. Waterhouse as *Gynacantha plagiata* in the "Transactions" for 1878 was specifically the same. Mr. Waterhouse was of opinion that the species was distinct. Mr. R. Adkin, two aberrant male specimens of *Argynnis Aglaia*. In one of them the basal two-thirds of all the wings were almost completely covered with black, and broad black streaks crossed the remaining third of the wings to the outer margin, following the venation. In the other specimen the peculiarity consisted in the presence of a greenish-white blotch on each of the wings on the left side, similar in character to the pale blotches not infrequently observed in *A. Paphia*. Both specimens were taken near Brighton in July last, where the species was unusually abundant. Papers were communicated on "Observations on some species of *Orina*, a genus of viviparous and ovo-viviparous beetles, by Mr. G. C. Champion and Dr. T. A. Chapman," reported by Dr. T. A. Chapman: "Illustrations of the sixth male ventral segment in seventeen *Osmia* species of the *adunca* group, with a note on the synonymy of three species, and descriptions of five which appear to be new," by the Rev. F. D. Morice, M.A.: and an Obituary notice of the late Dr. Otto Staudinger, by Mr. H. J. Elwes, F.R.S.—C. J. GAHAN and H. ROWLAND-BROWN, *Hon. Secs.*

January 16th, 1901.—THE SIXTY-EIGHTH ANNUAL MEETING.—Mr. G. H. VERRALL, President, in the Chair.

After an abstract of the Treasurer's accounts, showing a large balance in the Society's favour, had been read by one of the Auditors, the Secretary read the Report of the Council. It was then announced that the following had been elected Officers and Council for the Session 1901—1902. President, the Rev. Canon Fowler, M.A., F.L.S.; Treasurer, Mr. Robert McLachlan, F.R.S.; Secretaries, Mr. Herbert Goss, F.L.S., and Mr. H. Rowland-Brown, M.A.; Librarian, Mr. George C. Champion, F.Z.S.; and as other Members of Council, Professor T. Hudson Beare, F.R.S.E., and Messrs. R. Adkin, Charles G. Barrett, William L. Distant, H. St. J. Donisthorpe, F.Z.S., Charles J. Gahan, M.A., Robert W. Lloyd, Edward Saunders, F.L.S., G. H. Verrall, and Colbran J. Wainwright.

The President referred to the losses Entomology had sustained during the past Session by the deaths of the Baron de Selys-Longchamps, Mr. W. B. Spence, Mr. Blatch, Major George Cockle, Mr. Philip Crowley, Lord Dormer, Mr. J. H. Leech, Dr. W. H. Lowe, Professor Joseph Mik, Professor Emile Blanchard, Dr. Staudinger, and other entomologists. He then delivered an address. A vote of thanks to the President was proposed by Canon Fowler, seconded by Colonel Swinhoe, and carried. A vote of thanks to the Treasurer, Secretaries and Librarian was proposed by Mr. C. G. Barrett, seconded by Mr. Donisthorpe, and carried. The officers replied.—H. GOSS and H. ROWLAND-BROWN, *Hon. Secretaries.*

OBSERVATIONS ON *SPHECODES*.

BY THE REV. F. D. MORICE, M.A., F.E.S.

That a connection of some kind—whether or not it be that of “parasite” and “host”—exists between almost every species of *Sphecodes* and some one or more particular species of their near relations, the *Halicti*, can hardly, I think, be doubted by any one who has collected the two genera for any considerable time. Mr. R. C. L. Perkins long ago published two very interesting papers on this subject in the Ent. Mo. Mag. (May, 1887, and Feb., 1889) which, as Mr. E. Saunders says in his “*Hymenoptera Aculeata, &c.*” (1896), seem to go a long way towards proving the parasitism of *Sphecodes*. That view, of course, had been put forward long before, but was strenuously resisted by the late Frederick Smith, in his day the chief British authority on such subjects. I cannot but think, however, that Mr. Smith was a little biassed by his interest in the then recent discovery that *Prosopis* had been unjustly accused of parasitism, which predisposed him to believe that the charge against *Sphecodes* was equally unjust. On the Continent, as here, authorities have differed on the subject: several eminent French entomologists adopt the parasitism theory; but Friese (*Apidæ Europææ*) does not include *Sphecodes* among his “*Schmarotzerbienen*,” and in the catalogues of v. Dalla Torre and Friese it heads the list of the industrious genera or “*Sammelbienen*.”

I think it must be owned that nothing like proof positive that *Sphecodes* is parasitic on *Halictus* has yet been produced. No one, that is to say, has reared a *Sphecodes* from a cell known to have been constructed and provisioned by a *Halictus*. But then, the style of nidification adopted by *Halictus* makes it almost impossible to experiment upon its cells with a view to obtaining such evidence. Suppose a cell, resembling the little plain hollow shell of mud constructed by a *Halictus*, to be dug up successfully from the depths of a bank, to be kept through the summer, and to produce a *Sphecodes* in the autumn, how after all could we be sure that it had been made and provisioned by a *Halictus* and not by a *Sphecodes*? Even if the cell were found in close proximity to others occupied by *Halicti*, how could it be proved positively that this juxtaposition was not accidental? Perhaps, then, it would hardly be reasonable to require of the believers in the parasitism of *Sphecodes* a proof of this kind. And yet, in the absence of such proof, it would seem impossible for their view to advance beyond the state of a more or less probable hypothesis.

Personally, I shall not shrink from saying that, hypothesis or no, I am very much inclined to believe that it is true. The evidence for it is, no doubt, wholly circumstantial and inferential, but taken all together it appears to me very strong.

First, of course, there is the obvious argument from structure and general appearance. The "facies" of *Sphecodes* is, beyond all doubt, suggestive at least of parasitism.

Then there is an argument from analogy, which might carry little weight if it stood alone, but which, as corroborating other arguments, is worth consideration. As a rule, an *Aculeate* genus known to be parasitic appears from its structure to be a kind of offshoot from some industrious genus, often that which it chiefly infests. *Nomada* is a disputed case, but Mr. Saunders has shown that its structure is in some minute points accordant with that of *Andrena*. *Stelis* and *Anthidium*, however, *Celioxys* and *Megachile*, *Melecta* and *Anthophora*, are all clear cases in which the parasite stands close to the industrious genus in nearly all points of structure, except in the polliniferous apparatus. Supposing *Sphecodes* to be a parasitic offshoot of the *Halictus* stock, its structure is precisely that which the above analogy would lead us to expect.

Thirdly, there is the argument from the ordinary behaviour and demeanour of the ♀ ♀ *Sphecodes*, which is unmistakably that of parasites. They visit but do not toil among the flowers; they are seldom seen even apparently at work on excavation; they are never found taking sole possession of an unoccupied place with a colony of their own; but, almost wherever *Halicti* swarm, *Sphecodes* may be seen dogging their movements, and sneaking about their burrows with the same sort of vigilant and cautious activity which is so noticeable in (*e.g.*) the *Chrysids*. They seem to be always reconnoitring an enemy's position. They are "slim," mobile, inquisitive, restless, concentrating their attention upon no visible operations of their own, while industrious bees seem wholly absorbed in their own labours, and heedless of the occupations of others.

Fourthly, we have yet another argument, resting on the concurrent appearance—much too regular to be accidental—of particular species of *Sphecodes* in and about the nesting places of particular species of *Halictus*. It is true that the evidence as to these associations is somewhat perplexed at present, and, in fact, it seems likely that few, if any, *Sphecodes* are wholly and solely attached to any one particular host. But that as a rule *Sphecodes* of one species abound in or are absent from particular localities, according as particular

species of *Halictus* abound there or otherwise, seems to me quite unquestionable. Several such cases are mentioned in Mr. Perkins's paper, and my own experience and that of others (I may venture, I think, to name Mr. Saunders among these) is in the main quite in accordance with his. Perhaps lists of such associations between species of the two genera drawn up by observers living in different parts of the country might differ slightly. Here, for instance, near Woking, I am sure that *S. longulus* is associated with *H. minutissimus*, and nearly sure that *S. puncticeps* goes with *H. villosulus*, which are cases not mentioned by Mr. Perkins, and may be confined to this or certain definite districts. Everywhere *S. pilifrons* and *H. leucozonius*, *S. similis* and *H. quadrinotatus*, *S. reticulatus* and *H. prasinus*, seem to occur together or to be alike absent. The ubiquitous *S. gibbus*, *S. subquadratus*, and *S. affinis* probably attach themselves to a variety of species, but the special host of *gibbus* according to all accounts is *H. rubicundus*, and I have in all localities found *S. affinis* in company with *H. nitidiusculus*, though Mr. Perkins considers that its first choice is rather *H. tumulorum*. Mr. Perkins has found *S. spinulosus* with *H. xanthopus*, and Mr. Sladen has taken the two species in the same place though not at the same time; but I have never met with the latter species, and on the one occasion when I found *spinulosus* abundantly it could not, I think, have been so associated. To this point I will return presently.

So far we have only dealt with the probable parasitism of *Sphecodes* on *Halictus*; but there is at least one case in which a *Sphecodes* has been almost proved to be parasitic on an *Andrena*. The observations of Mr. F. W. L. Sladen and of Mr. Saunders recorded in Ent. Mo. Mag. xxxiii, p. 256, and xxxiv, p. 213, make it practically certain that *S. rubicundus* is an inquiline to *A. labialis*. This is a very interesting case, because *S. rubicundus* differs from almost all our species in that the two sexes of each year's brood appear before and not after the hot season, so that the ♀ has no need to hibernate before ovipositing. They are ready to lay their eggs about June or July, just the time when the cells made by hibernating *Halicti* contain not food, but full fed young, and are closed and probably unassailable by the *Sphecodes*. Accordingly it seems that *S. rubicundus* is absolutely driven to have recourse to some genus with an economy more like its own, and such a genus it finds in *Andrena*. The one other British species of *Sphecodes* which appears (both sexes) about June is the rare *S. spinulosus*, and I am strongly of opinion that the many ♀ ♀ of this species which I found this summer at

Swanage were similarly attached to a large colony, then in full activity of *Andrena fulvicrus*. I hardly think *H. xanthopus* could have been their host on this occasion; certainly not a single specimen of the species was to be seen, and I could scarcely have overlooked so remarkable an insect, had it been there in sufficient quantities to entertain the *Sphecodes*.

But more than this, from a long series of observations made by me this spring I am strongly inclined to think that even hibernating species of *Sphecodes* occasionally attach themselves not to *Halictus* but to *Andrena*. There seems no reason why they should not do so; the food stored by a spring *Andrena* and a *Halictus* is derived from the same sources and probably very similar, and supposing a young *Sphecodes* to be reared in an *Andrena*'s cell it could choose its own time for emergence, and might appear in the autumn, whether the *Andrena* had an autumn brood or not. In the particular case in question the *Andrena* was double-brooded. The case was as follows:—

A. fulvicrus is very abundant in this neighbourhood, and I have paid repeated visits to large colonies of it—one freshly formed this year in a new sand cutting—in hopes of finding its parasite, *Nomada fucata*, which I have taken abroad in the spring, though in England it seems to be an autumn species only. However, in none of all the colonies I visited could I find a single *Nomada*, except one specimen (evidently there by accident) of *N. flavoguttata*. But I noticed, over and over again, various species of *Sphecodes*, especially *gibbus*, *subquadratus* and *similis*, dodging about the *Andrena* burrows, and sometimes actually entering and remaining in them for some little time. Once or twice I saw a *Sphecodes* pop into a hole and suddenly pop out again, followed by the *Andrena*'s head and shoulders, the latter disappearing again when the intruder was gone. On another occasion, when the owner of the ground was with me looking at this little scene, we saw an *Andrena* issue from a hole and fly away, and shortly afterwards saw another bee enter the same hole and remain there for a considerable time. Then it came out and we netted it. It was a *Sphecodes gibbus* ♀.

I do not say that all this *proves* even occasional inquilinism of *Sphecodes* on *Andrena*. The visits of the former to the holes of the latter may have had some other reason, but they certainly took place, and were too frequent, I think, to be due to pure accident, as when the other day I saw a *Cerceris ornata* ♀ making furious dashes at a hole, out of which presently came a *Cerceris arenaria* ♀, whereupon the *ornata* went in with an air of possession, and the *arenaria* flew

quietly away. Here, no doubt, one insect had simply got into another's hole by mistake: and again I have seen a *Crabro interruptus* ♀ go into the hole of an *Osmia*, but come out immediately, although the owner was not at home. The mere fact, then, of an insect being seen to issue from the hole of another does not necessarily prove any biological connection between the two. But if the phenomenon occurs repeatedly it will (in Dogberry's phrase) "go hard to be thought" that there is such a connection. And I can say positively that in the case I have described above, the phenomenon occurred not once or twice, but repeatedly throughout the whole period of observation.

What the object of these constant visits of the *Sphecodes* to the *Andrena* burrows was, is another question. I saw them enter the burrows, but I did not see them, and could not have seen them—even if they did so—enter the actual cells far below the surface of the ground in which the *Andrenæ* store their pollen and lay their eggs. I suppose it is conceivable that they may have made cells of their own among but apart from those of the *Andrena*, as certain small ants are said to tunnel on their own account between the chambers occupied by a larger species, or as rats and mice make their own houses in the walls of ours. But I see no reason for preferring this or any other hypothesis to the more simple one—that they are ordinary inquilines ovipositing in the cells of their hosts and taking advantage of the stores accumulated there. Some day, perhaps, the "X rays" will enable us to watch their actual proceedings after entering an *Andrena* burrow, but till then it is to be feared we shall have to rest content with hypotheses which may or may not be true. And I must say that the hypothesis which seems best to explain all that I have read or seen of the habits of *Sphecodes*, is that of its parasitism, usually on *Halictus*, but sometimes also on *Andrena*.

Since writing the above I have become acquainted with two remarkable papers by M. Ferton on the parasitism of *Sphecodes* (Bull. Soc. Ent. Fr., 1898, Rev. Scient., 1890). According to his observations the parasite not merely infests the burrows of *Halictus*, but engages in deadly battles with certain females of the latter, who are posted (he says) as sentinels to defend not their own cells only, but those of the entire colony (!), against the attacks of these marauders. Such an organization for common defence implies, as he points out, that *Halictus* is not only an industrious, but to some extent a social genus—contradicting, it need hardly be said, the opinions hitherto generally held on the subject.

Duels to the death between parasite and host have been recorded in the case of *Psithyrus* and *Bombus*. But, as a rule, parasitic bees do not seem to employ open violence towards their victims, nor do the latter show any pronounced hostility to the parasites. They seem, if not friendly, at least indifferent to their presence. I must confess that I have never myself seen anything like the assaults and battles described by M. Ferton, and I should have thought that in such a contest between a *Halictus* and a *Sphecodes* the odds were rather in favour of the *Halictus*, whereas it seems that in all M. Ferton's observations, whenever there was a fight to a finish, the *Halictus* was killed by the *Sphecodes*. Still I do not venture nor desire to dispute M. Ferton's statements, though I must own that I feel a certain reluctance to believe that the phenomena he describes can be normal—they are so completely at variance with the impressions I have derived from my own observation of the habits of the two genera in this country and elsewhere.

Brunswick, Woking :

November 7th, 1900.

NOTES ON THE LEPIDOPTERA OF NORTHAMPTONSHIRE.

PART I. RHOPALOCERA.

BY HERBERT GOSS, F.L.S.

With the exception of the *Macro-Lepidoptera* and a few species of *Micro-Lepidoptera*, *Coleoptera*, and *Hymenoptera*, the insects of Northamptonshire appear to be entirely unknown. Probably, the chief reason for the comparative neglect of this County by Entomologists is that its natural conditions are far less varied than those of some other Midland Counties, and many of the Southern, Eastern, Western, and Northern Counties. An Inland County without any important ranges of hills or mountains, and no extensive tracts of moor or fen-land would not be expected to produce a great variety of species. Apart from the still remaining fragments of the ancient forests of Salcey, Whittlebury, and Rockingham, and its other numerous and extensive woods, amounting, in the whole, to over 28,000 acres, Northamptonshire consists mainly of arable and pasture land,—chiefly the latter, which absorbs about three-fifths of the entire acreage of the County.

Between sixty and thirty-five years ago Northamptonshire was well worked for the *Macro-Lepidoptera* by Archdeacon Bree, The Revd. Hamlet Clark, The Revd. W. Whall, Mr. Sturgess, and the late

Mr. Frederick Bond; and within the last thirty-five years many local species of *Lepidoptera* have been observed and collected in the County by the writer, by Mr. W. Hull, Mr. H. F. Tomalin, Mr. W. Edwards, Mr. Thomas H. Briggs, Mr. Frank Bouskell, Mr. G. Claridge Druce, Mr. W. J. Kaye, The Honble. Charles Rothschild, Mr. Eustace Wallis, and especially by Captain J. A. W. Vipan.

The *Rhopalocera* are still well represented, though *Aporia crataegi*, *Lycæna arion*, and *Lycæna acis* have apparently been extinct for some years, and the present occurrence of *Leucophasia sinapis* and *Melitæa artemis* seems to require confirmation. Including the five last named, no less than fifty-three species of butterflies have been taken in the County, or three more than in Hampshire and the Isle of Wight!

In addition to the commoner species of general distribution throughout the United Kingdom, the following more or less local species have been found in the County.

Leucophasia sinapis, L., was formerly abundant in Whittlebury Forest, and it has also been reported by Mr. Eustace Wallis from Geddington Chase. It was also formerly taken in Plane Woods, Preston Deanery, Sywell Wood, Yardley Chase, and also by the late Mr. Frederick Bond and the Revd. Hamlet Clark near Towcester and elsewhere, but I understand that no specimens have been seen of late years.

Pieris crataegi, L., formerly occurred near Peterborough, also in Barnwell Wold, and between Thurning on the borders of the County and Gidding Magna, in Huntingdonshire, but it seems to have been extinct for some years past, as it has been in most other English and Welsh Counties. I looked for it in vain between Thurning and Gidding Magna more than thirty years ago.

Colias edusa, Fb., and *C. hyale*, L.—The former of these, with the var. *helice*, is generally distributed throughout the County, and was common in 1878, 1892, and 1900. The latter species has also been taken occasionally throughout the County, and was not uncommon in 1900.

Argynnis paphia, L., *A. adippe*, L., and *A. aglaia*, L., are commonly distributed throughout the forests and woods of the County, and the first named is sometimes abundant.

Argynnis lathonia, L., has been recorded from the County, but I have not heard of any recent captures.

Argynnis euphrosyne, L., and *A. selene*, Schiff.—The former of these occurs commonly in most of the woods. The latter is more local, but has been recorded from Waddenham and Towcester.

Melitæa artemis,* Fb., was formerly found commonly at Aldwinkle, near Waddenham, and also near Towcester. Mr. Wallis recollects it as formerly occurring near Barnwell, and Messrs. Hull and Tomalin† also record it from Barnwell and Polebrooke, but it does not appear to have been observed for some years past.

Vanessa c-album, L., which is so abundant in favourable seasons in certain West Midland Counties, and other parts of the West and North of England, and in Wales, occurs in this County rather sparingly. The writer has taken it near Oundle, and reports of its capture have also been received from Waddenham, Towcester, Yardley Chase, Sywell Wood, Lilford, Barnwell Wold, Northampton, and elsewhere. Mr. W. Edwards has recorded it as frequent near Lilford on ivy bloom at the end of September.

Vanessa polychloros, L., is pretty generally distributed throughout the County, and has been taken at Towcester, Barnwell, Geddington Chase, Weekly Hall Wood, and elsewhere.

Vanessa antiopa, L.—A specimen of this rare species was seen at Thurning by The Revd. W. Whall about thirty-five years ago. Two others are recorded from Northampton, and one from Wellingborough. Mr. G. Claridge Druce saw, and nearly captured, one at Pottersbury in 1875, and Mr. Wallis informs me that a specimen has been taken near Kettering.

Limenitis sibylla, L., appears to be scarce in the County, but the late Mr. Bond recorded its capture near Waddenham. Messrs. Hull and Tomalin mention Sywell Wood and Lilford as localities for it, and Mr. G. Claridge Druce informs me that he saw it last summer near Brackley.

Apatura iris, L., occurs in most of the great oak woods in the neighbourhood of Kettering, in Weekly Hall Wood and Geddington Chase; also in Whittlebury Forest, Salcey Forest, Sywell Wood, Yardley Chase, and elsewhere, both in the North and South of the County. In some seasons it is plentiful in certain woods.

Thecla rubi, L., and *T. quercus*, L., are generally distributed throughout the County, and the latter is common in most of the oak woods.

Thecla w-album, Knoch.—This local species is pretty generally

* *Melitæa cinxia*, L., is included by Messrs. Hull and Tomalin in their list of the *Lepidoptera* of Northamptonshire, published in volume 11 of the Journal of the Northamptonshire Natural History Society, 1882; and Stainton mentions Peterborough as a locality for this species in volume 1 of his Manual. I think the reported occurrence of this species in the County must be due to an error.—H. G.

† See Journal of Northamptonshire Nat. Hist. Soc., 1882, above referred to.

distributed throughout the County, and is, in some seasons, common in certain localities, such as Sywell Wood, Yardley Chase, and Salcey Forest.

Thecla pruni, L., the most local and interesting species of the genus *Thecla* is, in some seasons, abundant in woods near Kettering and other places in the County, but, with the exception of a few localities in North Buckinghamshire, and in Huntingdonshire, and in other neighbouring Counties, it is unknown elsewhere in the United Kingdom. According to my experience, it is fond of settling on the flowers of the Privet (*Ligustrum vulgare*) and the Wayfaring Tree (*Viburnum lantana*). Mr. Kaye says it is also partial to the flowers of Valerian.

Thecla betulæ, L., is also common in some seasons in many places in the County, more especially in the larval state.

Lycæna arion, L.,* was formerly plentiful in rough pastures adjoining Barnwell Wold, but it disappeared nearly forty years ago, after the exceptionally wet summer of 1860, and is apparently extinct in the County. As is well known, it still occurs, somewhat sparingly, in the Cotswolds in Gloucestershire, and is in some seasons abundant in a few places in Devon and Cornwall.

Lycæna acis, L., formerly occurred in many places in the County, and Sywell Wood is given as a locality by Messrs. Hull and Tomalin.

Nemeobius lucina, L., occurs near Towcester, and in Barnwell Wold, and I have found it commonly in many of the woods of the County.

Hesperia paniscus, Fb., sometimes occurs commonly in many woods in the neighbourhood of Rockingham and Kettering, also in Whittlebury Forest, Yardley Chase, and in other woods throughout the County. It is, however, extremely local, and I have found it abundantly in one wood, and entirely absent from an adjoining one. It also occurs in a few woods in Huntingdonshire, Rutlandshire, and Lincolnshire, and has been reported from certain localities in Suffolk, but it is probably nowhere so plentiful as in this County.

Pamphila comma, L., has been recorded from Barnwell Wold by Mr. T. H. Briggs, and from the same locality by Messrs. Hull and Tomalin.

* Mr. W. Edwards, in his Notes in the Journal of the Northamptonshire Natural History Society, No. 47, September, 1891, says:—"This rare and local butterfly was formerly plentiful in Barnwell Wold on wild heathy land, where the wild thyme was abundant. Some years back the whole was burnt up, destroying the food-plant, and now not a vestige of wild thyme is left."—H. G.

Northamptonshire has never been overworked, even by Lepidopterists, and the disappearance of *Aporia crataegi* from the County, simultaneously with its disappearance from Kent, Sussex, Hampshire, Monmouthshire, and other English and Welsh Counties, seems to show that its extinction throughout the United Kingdom was due to natural causes. *Lycæna arion* was extremely local in the County, and it may possibly have been so reduced in numbers by the burning of portions of its localities, and the consequent destruction of its food plant, as to render its survival, after an exceptionally cold and wet summer, almost impossible. At any rate, I am inclined to think that its sudden disappearance was rather due to the cause mentioned than over-collecting. *Leucophasia sinapis* seems also to have disappeared, or to be so rare as to render its present existence in the County very doubtful; and, as no recent records of the occurrence of *Melitæa artemis* are known, it seems possible that this species also may have become extinct* in the County, as it apparently has in Suffolk, Cambridgeshire, Buckinghamshire, Kent, and in many of its former localities in Sussex.

The Avenue, Surbiton Hill :

December, 1900.

ACANTHOPSYCHE OPACELLA: INSTINCT ALTERED WHEN
PARASITISED.

BY T. A. CHAPMAN, M.D., F.Z.S., &c.

I am able to add another instance to the several recorded in which the instinct of a Lepidopterous larva is much altered when it suffers from the attacks of internal parasites, usually Ichneumonids. These cases are for the most part of two kinds, the one consists of a caterpillar being induced to suppose itself mature when it is not, and to make a cocoon in the interests of the parasite, which is mature. The other is a variation in the normal method of constructing the cocoon again in the interests of the parasite. This instance, in the case of *A. opacella*, belongs to the latter class.

When ready to pupate the ♂ *opacella* lengthens its tube and closes it with a dome shaped end, which readily opens out and forms a portion of the tube. This portion grasps the pupa in its protrusion and holds it firmly whilst the moth emerges, but it spins no silk within the sac. The ♀ larva fills the end of the sac with an abundant network of silk that completely fills the sac round the anterior end of

* It still occurs to my knowledge in several localities in Hampshire, Gloucestershire, and Cumberland.—H. G.

the pupa and up to the mouth of the sac. This has, however, an arrangement that permits the ♀ moth easily to traverse its axis, though its elasticity closes the route up again when she leaves it.

I do not know whether the parasitised specimen is a ♂ or ♀, but the silk spun by the larva agrees with the normal spinning of neither ♂ nor ♀. In the specimen, as I now see it, the pupal case of this Dipteran (some Tachinid) is in much the position occupied by the head of the ♀ pupa of *opacella*, lying in a mesh of loose silk, but this silk does not continue forward to the mouth of the sac, but immediately in front of the Dipterous pupa, at a distance of 7—8 mm. from the mouth of the sac, forms a smooth transverse diaphragm. Through this diaphragm the Dipteran has emerged through a transverse slit, made not by the Dipteran rupturing the silk, but obviously by a weak line having been spun in just the right position by the *opacella* larva. The Dipteran did not expand its wings, and with this added difficulty to that involving the naming of many Tachinids, one has to be satisfied by recognising that it is undoubtedly a Tachinid.

How does instinct in a case like this get changed in precisely the manner to suit the parasite? This seems to be especially a difficult question here, since *A. opacella* is affected, so far as my experience goes, comparatively rarely by Dipterous parasites.

We must suppose that as a species (say *opacella*) alters its habits, so the parasite alters not only its own habits but the effects it produces on its hosts, and natural selection will favour those parasites that produce effects useful to themselves. A Tachinid, for example, that made an *opacella* spin an unopenable cocoon could not thrive, but it would thrive in exact proportion to the suitability of the change *opacella* made in her cocoon to the requirements of the parasite. How the effect is produced is a very obscure matter, but it must be by some effect on the nervous system of the host, either mechanically, or by the production of some agent acting chemically.

Some Psychids are freely attacked by Tachinids, and *opacella* may be so, though I have not met with it. If it really is not we must conclude that this Tachinid has its haunt on some other species, or on Psychids generally, here to produce this desired effect on its host, and that the procedure, whatever it is, is effective on *opacella*, though elaborated not in that species, but on some of its allies. Probably the Tachinids have grown up along with the Psychids and perfected and varied their procedure throughout the whole time the Psychids have been evolving. It is tolerably certain that a Tachinid strange to Psychids was not let loose on them a few years ago, and has already developed such curious interactions.

NAMES OF LEGS OF INSECTS.

BY G. H. VERRALL, V.-P.E.S.

When will Entomologists of the present time correctly name the legs of insects?

All Entomologists know that insects have three pairs of legs, but after that (in at least Dipterology) they seem to be in a hopeless confusion.

The three pairs of legs are—

1. Front legs = *Pedes antici*.
2. Middle legs = *Pedes medii*.
3. Hind legs = *Pedes postici*.

For convenience there exist the combinations of—

1. } Anterior legs = *Pedes anteriores* (excluding "*postici*").
2. }
2. } Posterior legs = *Pedes posteriores* (excluding "*antici*").
3. }

Let it be clearly understood that there is only

ONE pair of front, middle or hind legs.

but that there are

TWO pairs of anterior or posterior legs.

The above definition of course applies to parts, such as femora, tibiæ, tarsi, &c.

Anterior does NOT mean front only.

Posterior does NOT mean hind only.

N.B.—American Journals please copy.

Sussex Lodge, Newmarket :

February, 1901.

THE COMPLETED HISTORY OF *HARPALUS FRÖLICHII*, STURM,
AS A BRITISH INSECT.

BY CLAUDE MORLEY, F.E.S., &c.

It is with much regret that I now state my conviction that this fine species must be looked upon as a thing of the past in Britain. I will not attempt to explain the inexplicable, for its disappearance is nothing less. First found in May, 1897, it was not positively determined to be the above species by Mr. E. A. Newbery till February 24th, 1898, nor published as new to Britain till the following April.*

* Cf., Ent. Mo. Mag., xxxiv, pp. 84, 85; Coleopt. of Suffolk, pp. xi et 6.

From the middle of the next April it gradually increased in numbers, still within its extremely limited range, till the middle of June, and had practically disappeared by the end of the month. During July I took one or two *Geodephagous* larvæ beneath stones, thinking they possibly might appertain to this species, but I failed to rear them, and no better success attended two or three pairs of imagines previously brought home and surrounded with a natural pabulum with a view to obtaining ova. Towards the end of the month the beetle began to emerge on the Plateau, one or two being still immature when found. I was away throughout August, and repeated diligent searchings in September were abortive. The only subsequent capture was that of a solitary specimen, a little removed from the headquarters, early in August, 1899.* It has not occurred at all during the past season.

Mr. P. B. Mason and Mr. E. C. Bedwell have searched the spot for the species too late. Mr. E. A. Elliott is the only collector besides myself who has taken *H. Frölichii*.†

The habits appear to vary in no way from those of other *Harpali*, notably *H. discoideus*, with which the species was almost constantly found, though much less commonly. It is not gregarious, and the only occasion upon which I took more than two beneath a single shelter was under a large felled fir log, where were ten specimens. Subsequently it was found only beneath stones, usually small, more or less embedded in the sandy soil, into which these insects are wont to burrow beneath the stone and so further escape the sun's rays. The last specimen was the only one found exposed to the light of day. The majority were taken in dull, warm weather, with, perhaps, a fine rain falling, snugly ensconced just beneath the sides of the stone. Though the surrounding country was searched in apparently exactly similar environments no trace of the insect was discernible, and no reason obtained for the total disappearance of what a couple of years ago seemed a fairly strong colony.

A mention of some of its associates may yet further illustrate the natural circumstances under which the species is found, and, first, I may say the Plateau is covered, where no bracken grows and

* On June 6th, 1899, I visited the Plateau with Mr. Morley, and failed to discover a single specimen of this species, or of any other, in its old haunts. I noticed that the ground was thickly covered with sheep tracks, and that even the smallest stone had been moved out of its bed. May not this have something to do with the disappearance of the insects? On no previous occasion had there been any trace of sheep on that part of the Plateau.—E. A. ELLIOTT.

† *Entire details of capture*:—1897: May 4th, 5 examples, 4 by E. A. E.; 29th, 10 examples. 1898: April 16th, 4 examples; 28th, 15 examples, and several passed by; May 6th, 8 examples, and a dozen passed by; 13th, 4 examples; June 4th, 9 examples, 8 by E. A. E.; 5th, 9 examples by E. A. E.; 18th, 8 examples, and several passed by; 21st, only 4 examples seen; 28th, 1 male only; July 29th, 2 examples, and several immature passed by. 1899: August 7th, 1 example walking in a ploughed field about 100 yards from Plateau. Total, 80 specimens taken, of which the sexes were very nearly equally distributed.

the sandy soil is not entirely bare, by a short growth consisting chiefly of *Ornithopus perpusillus*, *Aira præcox*, with a few plants of *Erodium cicutarium* and *Erica*; later in the summer *Rumex acetosella*, *Filago minima*, and *Trifolium arvense* become evident, with *Reseda lutea*, sparingly, though there is no chalk stratum. The most abundant insects, though many are common, were *Metabletus forcola*, *Conostethus roseus*, and *Plagiognathus saltitans*.

In all ninety-two species of *Coleoptera* have been found within this circumscribed space, of which a few are common coast species, e.g., *Brosicus cephalotes*, *Calathus fuscus* and *C. flavipes*, *Amara fulva*, rarely, and *A. consularis*, *Coccinella 11-punctata*, *Notoxus monoceros*, *Philopodon geminatus*, *Sitones griseus*, and others that are seen in all sand districts.*

Among the rarer kinds that have occurred to me beneath these stones are *Harpalus discoides*, *H. consentaneus*, *Amara continua*, *A. lunicollis* and *A. bifrons*, *Platyderus ruficollis*, *Philonthus succicola*, in carrion, *Medon castaneus* (about the fourth British example), *Hister 12-striatus*, *Olibrus pygmæus*, *Pityophagus ferrugineus*, in logs, *Byrrhus dorsalis*, *Limonius cylindricus*, *Apion loti*, *Gronops lunatus*, and *Mecinus circulatus*. The pupæ of *Coccinella 7-punctata*, *11-punctata* and *22-punctata* are often abundant, conspicuously attached to the upper surface of the hot stones in the full glare of the sunshine towards the end of June.

Comparatively few *Hemiptera* have appeared, e.g., *Nysius thymi*, *Peritrechus geniculatus*, *Triphleps nigra*, *Rhyparochromus chiragra*, and *R. dilatatus*, *Plagiognathus pulicarius*, *Acocephalus histronicus*, and, of course, *Stiroma pteridis*. Of *Diptera*, *Thereva nobilitata*, *Conops flavipes* have been noted, and *Pulex leporis* was one day common at the mouth of a rabbits' hole. Apterous *Hymenoptera*: *Agrothereutes abbreviator* and *Pezomachus pumilus*, *Mutilla rufipes*, *Myrmica scabrinodis*, and *Myrmosa melanocephala* occur sparingly, with *Salix parvulus* and *Anthophora pilipes*, but I do not think these Fossors and parasites would attack so well mailed and concealed a Coleopteron, and it is not until we more fully comprehend the effects of geologic and atmospheric influences upon the propagation of species and their strange migrations that we shall explain the rise and fall of *Harpalus Frölichii* in Britain.

Ipswich: January, 1901.

* I may perhaps be allowed to here mention that the stridulating files of *Geotrupes typhaeus*, which occurs sparingly on the Plateau, are situated on the elytra, and that the sound is produced by friction of the abdomen upon these organs, as is the case in *Copris* and *Ligyrus* (cf., Gahan, Trans. Ent. Soc., 1900, p. 448). The striated coxæ may, however, also resonate (l. c. 446), since I did not test this.

ACULEATE HYMENOPTERA IN PERTHSHIRE.

BY A. E. J. CARTER.

In connection with the notes on Scottish *Aculeates* in Ent. Mo. Mag. for November, 1900, and January, 1901, perhaps the following note on species taken by me at Comrie, Perthshire, may be of interest. I collected there in 1898 during the first two weeks of July, and in 1900 from June 23rd to July 7th. In 1900 on most days the weather was unfavourable for collecting, being dull and wet, yet I found insects of all Orders much more abundant than in 1898, when I had not a single wet day. In the *Aculeates*, to which group I more especially confined my attention, I noticed only one exception to this, viz., *Crabro cribrarius*, Linn., which I took in numbers all over the district in 1898, while last year I only came across a single specimen, a ♂.

During the two visits I took altogether nearly sixty species, the more noteworthy of which only are noticed here. Mr. Saunders has very kindly made or confirmed the determinations :—

Formica rufa, Linn., ♀, 1900; *Leptothorax acervorum*, Fab., ♂ ♀ ♀, from a nest in the ground; *Tiphia minuta*, v. de Lind., one ♀, 1900; *Agencia variegata*, Linn., very abundant on walls, exploring crevices for spiders; *Ceropales maculata*, Fab., several in 1898; *Salix parvulus*, Dhlb., ♂ ♂, 1898 and 1900; *pusillus*, Schiödte, ♀, 1900; *Pompilus niger*, Fab., common; *approximatus*, Sm., ♂, 1900; *gibbus*, Fab., several ♂ ♀s; *spissus*, Schiödte, common; *ungicularis*, Thoms., two ♀, 1900; *pectinipes*, v. de Lind., ♀, 1898. The species of *Salix* and *Pompilus* occurred freely along a road running by a wood. They were nesting in a sandy bank, and in the earth of a stone dyke. *P. niger* and *spissus* were especially common. A large brown spider abundant on the ground among short vegetation seemed to be their prey. I found it in the nest of *spissus* with an egg attached to the left side of the abdomen. *Passalæcus monilicornis*, Dbm., one ♂, July 4th, 1900; *Pemphredon Shuckardi*, Moraw., common in garden; *lethifer*, Shuck., one ♀ in same place; *Crabro palmipes*, Linn., very common all over the district on both visits; *dimidiatus*, Fab., also common; *leucostomus*, Linn., several, 1900, nesting in a gate post; *varius*, Lep., ♂, 1900; *Wesmaeli*, v. de Lind., several, 1898 and 1900; *vagus*, Linn., 1900, nesting in tree stumps, common; *clavipes*, Linn., ♀, 1898; *Vespa norvegica*, Fab., 1900; *Odynerus parietinus*, Linn., common, found with mud nest on walls; *pictus*, Curt., ♀, 1900; *trimarginatus*, Zett., one ♂, June 28th, 1900.

The *Anthophila* were not so well represented as the "wasps." I took, amongst others :—

Halictus subfasciatus, Nyl., common; *villosulus*, Kirb.; also *Smeathmanellus*, Kirb., abundant at their burrows and at yellow composites; *Andrena analis*, Panz., common; *coitana*, Kirb., also common; *fucata*, Sm., 1900, ♂, very abundant at flowers of *Rubus*; *nana*, Kirb., 1900, common; *Nomada obtusifrons*, Nyl., 1898, at a bank with *Andrena analis* and *coitana*, but I did not see it enter the burrows of

either; *ruficornis*, Linn., several at *Rubus*; *flavoguttata*, Kirb., 1898 and 1900, both sexes in company with *Andrena minutula*, Kirb.; *Bombus lapponicus*, Fab., 1898 and 1900.

I do not think that this list by any means exhausts the district, as all my time was not given to collecting, and several promising localities I did not try at all.

Selville Cottage, Portobello, Edinburgh:

January, 1901.

HYMENOPTERA ACULEATA OF SUFFOLK.

BY THE REV. J. H. HOCKING, M.A., F.E.S.

After forty years of pretty continuous work in India and at home at *Lepidoptera*, I have, during 1899 and 1900 been devoting my leisure time to collecting the *Hymenoptera* and *Diptera* of Suffolk.

During this time I have taken of *Hymenoptera Aculeata* 33 species of Fossores, 10 of *Diploptera*, and 96 of *Anthophila*; or 139 of the 282 species in the Suffolk list.

I am indebted for most kind help in naming the species to the Rev. E. N. Bloomfield of Guestling, Mr. Harwood of Colchester, and to Mr. E. Saunders, who has finally identified all doubtful specimens.

Sphecodes rubicundus, *Haliectus zonulus*, *H. breviceps*, *Nomada sexfasciata*, and *Andrena Hattorfiana* are additions to the last Suffolk list as published in 1899.

At present I have not touched the *Heterogyna*.

The following is a list of the less common species which were all, except where otherwise stated, taken at Copdock, that is, within a radius of about three miles.

FOSSORES: *Myrmosa melanocephala*, F. *Sapyga quinquepunctata*, F. *Pompilus rufipes*, L. (Hellesley); *P. spissus*, Schiödte; *P. chalybeatus*, Schiödte (Hellesley). *Salix fuscus*, Linn. *Agenia hircana*, Fab. *Ammophila sabulosa*, Linn. *Diodontus tristis*, v. de Lind. *Passalæcus corniger*, Shuck. *Gorytes mystaceus*, Linn. *Nysson spinosus*, Fab. *Cerceris interrupta*, Panz.; *C. labiata*, Fab. *Crabro capitosus*, Shuck.; *C. podagricus*, v. de Lind.; *C. chrysostomus*, Lep.; *C. interruptus*, De Geer.

DIPLOPTERA: all the *Vespidæ* (excepting *V. rufa*, Linn., *V. austriaca*, Panz., and *V. norvegica*, Fab.). *Odynerus spinipes*, Linn.; *O. trifasciatus*, Oliv.; *O. parietinus*, Linn.; *O. gracilis*, Brullé; *O. sinuatus*, Fab.

ANTHOPHILA: *Colletes picistigma*, Thoms. *Prosopis signata*, Sm., *P. confusa*, Nyl. *Sphecodes dimidiatus*, v. Hag.; *S. rubicundus*, v. Hag. *Haliectus xanthopus*, Kirb.; *H. zonulus*, Sm. (Hellesley); *H. minutus*, Kirb.; *H. breviceps*, E. Saund. *Andrena Hattorfiana*, Fab.; *A. Cetti*, Schr.; *A. cingulata*, Fab.; *A. pilipes*, Fab. (both sexes on *Veronica*); *A. bimaculata*, Kirb.; *A. rosæ* var. *spinigeru*, Kirb.; *A.*

nitida, Fourc. ; *A. angustior*, Kirb. ; *A. fucata*, Sm. ; *A. nigriceps*, Kirb. ; *A. chrysoseles*, Kirb. ; *A. proxima*, Kirb. ; *A. dorsata*, Kirb. *Cilissa leporina*, Panz. *Nomada sexfasciata*, Panz. ; *N. jacobææ*, Panz. *Epeolus productus*, Thoms. *Melecta armata*, Panz. *Celioxys quadridentata*, Linn. ; *C. rufescens*, Lep. *Megachile maritima*, Kirb. ; *M. circumcincta*, Lep. ; *M. lignisecca*, Kirb. *Anthidium manicatum*, Linn. *Stelis aterrima*, Panz. *Chelostoma florisomne*, Linn. ; *C. campanularum*, Kirb. *Osmia pilicornis*, Sm. *Eucera longicornis*, Linn. *Anthophora retusa*, Linn. ; *A. furcata*, Panz. All the species of *Psithyrus*. All the species of *Bombus*, excepting *B. Smithianus*, *Jonellus*, *lapponicus*, *soroensis*, and *pomorum*.

Copdock Rectory, Ipswich :

January 8th, 1901.

DESCRIPTION OF A NEW SPECIES OF *CRUNÆCIA* (TRICHOPTERA) FROM AUSTRIA.

BY KENNETH J. MORTON, F.E.S.

The section of the *Sericostomatidæ* to which this genus belongs contains insects of highly specialized type, and the sexual dimorphism is usually marked by striking secondary characters. Mr. McLachlan, in his Mon. Rev. (p. 271) says: "The structure of the insects is especially liable to excessive modification, and generic limitation will possibly be found extremely vague unless a minute generic sub-division be effected." As a matter of fact, at the time Mr. McLachlan wrote, each of the three European (in the restricted geographical sense) genera was known with certainty to contain but one species, and although *Lepidostoma* now stands with two species within its bounds, this is rather the result of toleration than conviction, as the two seem to be little more than forms of one species.

It was accordingly very interesting to find amongst some *Trichoptera* sent to me by Dr. Peter Kempny, of Gutenstein, Lower Austria, in 1898, two examples of what appeared to me to be a distinct new species of *Crunæcia*. The material, although in fairly good condition, I considered inadequate, and I urged Dr. Kempny to find more. In this, I am glad to say, he has been successful, and I now without hesitation proceed to describe the insect as

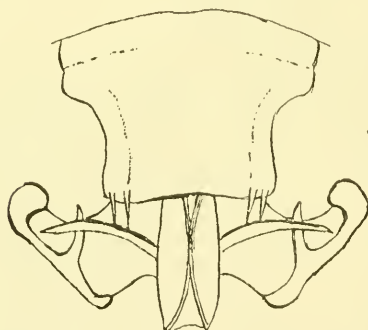
CRUNÆCIA KEMPNYI, n. sp.

Blackish, paler beneath. Antennæ nearly uniformly fuscous, traces of annulation being as a rule scarcely perceptible; basal joint with long dark brownish hairs. Head clothed with dark brownish hairs; warts brown, apparently arranged as in *C. irrorata*. Warts of the pronotum usually paler. Maxillary palpi of the ♂ not examined (they are either broken off or closely appressed in the examples

before me); those of the ♀ darker than the labial palpi, which are yellowish in both sexes. Legs testaceous, but partly fuscous; coxae fuscous. Anal parts yellowish.

Wings with the venuration similar to that of *C. irrorata*; iridescent; fore-wings with blackish pubescence; long silky fringes of the hind-wings more greyish.

In the ♂ the anal parts consist of a large broad dorsal plate, the posterior part of which is narrower than the basal, and the hind angles are each provided with two strong spines; seen from above the breadth of the posterior part of the plate and



the position of the spines vary a little from the results of drying. From beneath this plate escapes the large down-turned penis, which, seen from above, seems to have two approximated piceous ridges which open in front, causing the apex to appear excised. The inferior appendages are large and prominent; viewed from beneath they consist of a basal part which has towards its inner margin a more

strongly chitinated band, which seems to be turned abruptly outwards; after narrowing slightly they turn outwards into a large foliaceous expansion, the hind margin of which is excised, and the outer portion of this expansion is in turn recurved towards the abdomen. From the inner angle, or lobe, of the excised hind margin, viewed from above, springs a long and strong spine directed outwards, and from the outer margin of the foliaceous expansion arises a much smaller spine directed forwards.

The ♀ has the anal parts very much as in *C. irrorata*.

Expanse of wings, $11\frac{1}{2}$ —13 mm.

Compared with *C. irrorata* this new species is an altogether much darker looking insect, and the golden pubescence of the former insect is entirely absent. The costal fringe seems also to be less dense than in *irrorata*, and so do the pubescence of the membrane and the hairs of the basal joint of the antennæ, but the material is not in a condition so perfect as are the examples of *irrorata* used in comparison.

As all the examples of *Crunacia* in Mr. McLachlan's collection

from many localities in the more western parts of Europe are *C. irrorata*, the distribution of this new species will in all likelihood prove to be more or less oriental. But these insects are unobtrusive, and must often be passed over in districts where they are bound to exist.

EXPLANATION OF FIGURES.

1. Apex of abdomen from side.
2. Inferior appendages from beneath.
3. Apex of abdomen from above (more enlarged).

13, Blackford Road, Edinburgh :

December, 1900.

DESCRIPTION OF A NEW SPECIES OF *CICADIDÆ* FROM THE BAHAMA ISLANDS.

BY W. L. DISTANT, V.P.E.S.

Mr. J. L. Bonhote has given me five specimens, three ♂ and two ♀, of a *Cicada* he captured at Nassau, a species which requires description.

CICADA BONHOTEI, *sp. n.*

♂. Body above dark fuscous, ochraceously pilose; eyes, anterior margins—narrowly—and lateral and posterior margins of pronotum, margins of two obconical basal spots to mesonotum, and the cruciform elevation brownish-ochraceous; a transverse metanotal fascia, the lateral margins of the penultimate and the whole of the apical segment of the abdomen cretaceous-white; a dark fuscous irregular suffusion on the lateral areas of the pronotal margins. Body beneath fuscous; head sternum, and lateral margins of abdomen cretaceous-white; rostrum, femora, and opercula ochraceous; tibiæ olivaceous; apical half of rostrum, apices of the tibiæ and tarsi, and basal inner margins of opercula, piecous.

Tegmina and wings pale hyaline, the venation olivaceous on basal half, but becoming fuscous towards apex; tegmina with the inner basal area and the transverse veins at bases of second and third apical areas, infuscated.

♀. Body paler above where the cretaceous-white markings are absent, though present beneath.

The face is broadly tumid, centrally broadly sulcate, with the transverse striations very strongly developed; in the ♂ the opercula are triangular, their lateral margins very slightly convex, their inner margins oblique, their apices subacute and reaching the second abdominal segment; the pronotum has a broad transverse foveate impression at its anterior margin, and the usual incisures are profound.

Long., excl. tegm., ♂ and ♀, 34 to 35 millim. Exp. tegm., 95 to 100 millim.

Hab. : Bahama Islands, Nassau (*J. L. Bonhote*).

Warlingham, Surrey :

January, 1901.

Aculeate Hymenoptera in North Wales.—On July 4th, 1900, I again visited Criccieth, and during my stay there was able to add the following insects to my list of captures, published on page 62, vol. xi, 1900:—*Pompilus chalybeatus*, Schiödt, *Ceropales maculatus*, Fab., *Astata stigma*, Panz., *Diodontus minutus*, Fab., *tristis*, v. de Lind, *Mimesa bicolor*, Fab., *unicolor*, v. de Lind, *Gorytes tumidus*, Panz., *Cerceris arenaria*, Linn., *Crabro Wesmaeli*, v. de Lind, *cribrarius*, Linn., *Oxybelus mucronatus*, Fab., *Odynerus pictus*, Curt., *sinuatus*, Fab., *Andrena nigriceps*, Kirb., *denticulata*, Kirb., *Dasypoda hirtipes*, Latr., *Epeolus rufipes*, Thoms., *Cœlioxys rufescens*, Lep., *elongata*, Lep., *Stelis aterrima*, Panz., *Osmia xanthomelana*, Kirb., *fulviventris*, Panz., *Psithyrus rupestris*, Fab., *campestris*, Panz., *quadricolor*, Lep., *Bombus Smithianus*, White, *Jonellus*, Kirb., *soroensis*, Fab., var. ?

Only ♀s were taken of the rare *O. xanthomelana*, and these were worn, the hairs on the thorax being matted with clay in some cases, showing that they had been busy with their nests. The nests I could not find, though diligent search was made for them. The bees were only noticed on the flowers of *Lotus corniculatus*. *Oxybelus mucronatus*, and *Andrena nigriceps* looked very beautiful on the flowers of *Eryngium maritimum*, though the ♂ of the former were also taken on *Euphorbia paralias*. *Bombus Smithianus* was caught the day before I left, August 8th, and was most conspicuous on the flowers of *E. maritimum*. Most of the *Aculeates* mentioned in my former list were again seen, *Osmia parietina* being very scarce. It makes its cells in the small cavities of a stone that is occasionally used in the field walls. *Pompilus approximatus*, Sm., occurred again in its old haunts near the sea, and *Nomada Roberjeotiana* was observed entering the burrows of *Halictus rubicundus*, but their stay was short, possibly owing to the presence of the owners.—E. B. NEVINSON, 3, Tedworth Square, Chelsea, S.W.: January, 1901.

Aculeate Hymenoptera in the New Forest.—On June 4th, 1900, I went to Lyndhurst for a few days and was pleased to capture some ♂s of *Andrena proxima*, Kirb., on the flowers of the rhododendron, also amongst other *Aculeates*, *Pompilus spissus*, Schiödt, *Halictus prasinus*, Sm., *Andrena varians*, Rossi, *helvola*, Linn., and *Melecta luctuosa*, Scop.

I am again indebted to the kindness of Mr. E. Saunders for confirming the identification of several in the above list.—ID.

Observations on Sphecodes.—I was very much interested in the article by the Rev. F. D. Morice upon *Sphecodes* begun in the January number of this Magazine, as for a long time I have been struck by the apparent connection between *Sphecodes* and *Andrena*, suggesting parasitism on the part of the former. I cannot give anything more in the nature of proof, and have no definite notes to refer to upon most of my observations; but one case which came under my notice seems worth quoting, as being an additional instance, and as supporting Mr. Morice's conclusions strongly. In Sutton Park, out on a bare part of the common, is a little colony of *Andrena humilis*. It is in rather an isolated spot, simply a few bare sandy places on a grassy slope, with no trees or bushes near, and not a bank in which one would naturally look for any *Aculeates* which might occur in the neighbourhood. On July

3rd, 1898, I visited this to obtain a series of *Nomada ferruginata*, which was rather common with its host, and while watching for these bees to appear noticed several specimens of *Sphecodes* which were appearing from and disappearing into the holes in the same way as the *Nomada*. I captured half a dozen, which all proved to be *S. pilifrons*, and were all females. Of course they may have been boring there quite on their own account, and the association with the *Andrena* have been purely accidental; but combined with Mr. Morice's observations, we may take it as strong circumstantial evidence that the *Sphecodes* were there in attendance upon the *Andrena*, either as parasites or asinquilines. I quote this case in particular, because of the decided isolation of the colony from other Aculeates.—COLBRAN J. WAINWRIGHT, 2, Handsworth Wood, Birmingham: February 9th, 1901.

Note on Piezodorus lituratus, Fab.—On May 16th, 1900, I was examining a gorse hedge for insects and found a great number of this Hemipteron disporting themselves in the sunshine. I was somewhat surprised to see the insect in May, as I found that Mr. Saunders, in his "Hemiptera-Heteroptera," mentioned autumn as the time for its appearance. On my mentioning the matter to him Mr. Saunders kindly explained that he gave autumn as the most usual time of its appearance. I was curious, therefore, to see whether it would appear here in the autumn, and accordingly kept a careful watch on the place where I had observed it in May. My watch was rewarded, for on October 18th, on a fine bright morning, I found the gorse again occupied by numbers of these insects, and extending my observations to other parts of my farm, I found them present in numbers on almost every furze bush I examined, and on this occasion I met with the larva also. I thought, of course, that I had seen the last of *Piezodorus*, for a day or two afterwards I went back to the place and could not see one. However, on November 17th the sun was shining brightly on the southern side of the hedge, and there were the insects basking in the genial beams, and I again met with the larva. I should mention that though the south side of the hedge was bright and warm the other side was quite the reverse, for there was a keen north wind blowing. I have yet another appearance to record. This morning, December 6th, between 11 a.m. and 12 noon I was walking past the hedge and thought I would take a look for my insect friends, and sure enough there they were sitting in the sunniest and sunniest corners and getting as much of a sun-bath as they could.

It would seem from the above observations that this insect hibernates and comes out of its retreat on any sunny morning to bask in the sunshine. I noticed both forms of colour as mentioned by Mr. Saunders, viz., either all olive-green or else with hinder parts of pronotum and elytra purple. I also noticed that some had the under-side grey instead of green.

I shall now try to describe the larva. Antennæ, head, pronotum, and embryo elytra, black; dorsal surface of abdomen brownish-black, with three raised transverse lines, jet black; the interspaces red, these lines do not reach the sides; the edges, that in the perfect insect would be the segments of the connexivum, are alternately black and red; under-side, fore-parts black; ventral segments of abdomen brownish-black, as above, and edges similarly coloured; legs black; the head, pronotum and embryo elytra, are rugose; length, when full grown, 8 mm.

These larvæ are very badly behaved in captivity, for all that I took, except one,

preferred to die rather than proceed to the perfect state, though I gave them every comfort, not to say luxury. One, however, did proceed to the change. It was evidently on the point of doing so when I captured it, for it had got part way through the process in the box in my pocket while I was carrying it from the field. I killed it before it had completed the process, and it is a most curious looking object. The head, pronotum, and scutellum are developed, and are olive-green, smooth, and sparingly punctured, while the rest of the creature remains in the pupal state.

The insect sits on the stems or thorns of the gorse, and if disturbed runs down the stem, or drops, and the thorns effectually prevent a rapid movement of the hand in pursuit. They harmonize well with the colour of the gorse, for I wanted to show them to my man, and until I put my insect forceps upon them he did not see them and told me that had I not pointed them out he would never have noticed them, and he is by no means unobservant.

I hope that in my attempt to describe the larva I have made myself clear, but I must ask indulgence for shortcomings as I do not profess to be *an fait* in the matter.—W. F. JOHNSON, Acton Glebe, Poyntzpass: December 6th, 1900.

[Mr. Johnson writes to me on January 20th: "The insect has been about all through the winter up to the present date. Every day that there is a little sunshine it comes out of its retreat. Yesterday was bright, though there was snow on the ground, and there were the insects sitting on the gorse in sheltered corners in the sunshine."—E. S.]

Notes on Diptera in the New Forest during 1900.—As regards weather and temperature the past season was almost a repetition of 1899, another cold lagging spring being followed by a very dry hot summer and autumn. I was at Lyndhurst from April 7th to 21st, when the willows, rather later than usual, were in full bloom. The weather however being cold and boisterous few insects of any kind were about, *Diptera* being especially scarce, and one *Criorrhina ruficauda*, Deg., one *Servillia ursina*, Mg., and two *Chilosia grossa*, Flin., were the best that fell to my net.

My next visit was from May 16th to June 1st, and although the weather was fine the nights continued cold and *Diptera* remarkable for their absence, my only captures worth mentioning being two *Lasiopogon cinctus*, F., two *Pipunculus vittipes*, Ztt., nine *Didea fasciata*, Meq., and one *Neottiophilum præustum*, Mg. Returning again on June 28th I found matters had improved with the warmer weather, and common *Diptera* were fairly plentiful, though not in swarms as I have seen them a few years back. Of rarer species both *Mallota cristatoides*, Lw., and *Callicera aenea*, F., showed a falling off, only one out of two of the former and two of the latter being taken, and these were all I saw. *Dioctria linearis*, Flin., was abundant in Brick Kiln enclosure, as also a *Pipunculus* I take to be *campestris*, Ltr., whilst *Myiolepta lateola*, Gmel., and *Alophora hemiptera*, F., were to be found on Portugal laurel and Umbelliferae.

At Matley Passage, near the sandpit, *Anthrax fenestrata*, Flin., seemed to revel in the almost tropical heat, and I secured a nice lot, as well as a few *Thereva annulata*, F. Several excursions were also made into the adjoining bog, which at the

time was almost dry, to sweep the yellow *Asphodel* (*Nartheecium ossifragum*) for *Paracrocera globulus*, Pz., but without any success, and the heat being excessive I gave up further attempts. I was absent from the Forest during August, but September was a fine dry month, and a noticeable feature was the re-appearance in some numbers of *Melanostoma hyalinatum*,* Fln., after being scarce since 1895. The result was twenty specimens, almost equally divided ♂ and ♀, and I also took sixteen more of what was apparently a second brood of *D. fasciata*, Mcq.

Throughout the season I noticed more *Mycetophilidæ* and other fungus-loving *Diptera* than usual, and amongst the former I took the following, of which, however, in some cases I only give the generic names, being doubtful about my nomenclature of the species being correct: *Mycetophila*, two, and *Glaphyroptera*, *Sciophila*, *Macrocera*, five species of each genus; also two *Leptomorphus Walkerii*, Curt., a rare fly I have not seen since 1895; one *Platyura atrata*, F.; two *P. fasciata*, Latr., and seven *Ceroplatus sesioides*, Whlb.

Amongst the other flies referred to were ten *Spilogaster uliginosa*, Fln., and two *Mycophaga fungorum*, a species I have only taken once before in 1892. *S. uliginosa* turned up singly in 1895, 1897, and 1899, and once when sending a specimen for confirmation to the late Dr. Meade I remarked that although he called it common in his "Annotated List of Anthomyidæ," I had not found it so at Lyndhurst, and in reply he wrote as follows: "*S. uliginosa* is very variable and local, and I cannot think what the larvæ feed upon. I used to live in a house quite in the centre of the town, and then found a considerable number of specimens (always) upon the windows. I have been sixteen years in my present house just outside the town, and have never seen a single specimen." My specimens also were taken upon windows, and although I have not yet proved the fact by breeding the larvæ, I have very little doubt about their pabulum being rotten timber and the fungi associated with the same, as the basement of my cottage is badly affected with what is called "dry rot." I also believe it is from the same source I obtain *C. sesioides*, as they are also found on the windows and walls of the same rooms, and have given instructions that next time any repairs are made the rotten wood is to be saved, and by placing some blocks of it in breeding cages hope to solve this question.

In addition to those already mentioned the following species were taken: one *Ptychoptera lacustris*, Mg.; four *Rhipidia maculata*, Mg.; one *Idioptera pulchella*, Mg.; one *Dysmachus trigonus*, Mg.; two *Volucella inanis*, L.; one *Prosenia siberita*, F.; one *Lispe tentaculata*, Deg.; four *Norellia spinimana*, Fln.; *Amaurosoma fasciata*, Mg. (com.); one *Tetanocera punctata*, F.; one *Limnia marginata*, F.; one *Dorycera graminum*, F.; *Ensina souchi*, L., and *Tephrites vespertina*, Lw. (both com.); three *Sapromyza fasciata*, Fln.; one *Ornithomyia avicularia*, L., and others.—FRED. C. ADAMS, 50, Ashley Gardens, S.W.: *January*, 1901.

Two unrecorded British Diptera.—I have specimens of a fly which both my father and myself considered to be the *Musca erythrophthalma* figured by Panzer. Mr. Austin, who has seen it, tells me it is *Chlorops rufina*, Zett.; they frequent the flowers of *Mentha hirsuta* in the month of August. The other species is *Phytomyza*

* Since writing the above I have obtained a copy of Mr. Verrall's new work, "British Flies (Syrphidæ)," and find *M. hyalinatum*, Fln., must in future be known as *Xanthandrus comtus*, Harr.—F. C. A.

flaviventris, Zett. It can be easily recognised by its red abdomen and head. I swept a couple off a wych elm at Glanvilles Wootton. I have last year taken three other interesting species of *Phytomyza*—*P. nigripennis*, Fall., a black species with unusually dark wings, in May; *P. nigricornis*, Macq., figured by Curtis in his "Observations on Insects affecting the Turnip Crops;" and *P. notata*, Meig., a pretty yellow species mentioned in Walker's "Diptera Britannica."—C. W. DALE, Glanvilles Wootton: February 6th, 1901.

List of Lepidoptera of Cheshire and North Wales.—The Chester Society of Natural Science are engaged in drawing up a List of *Lepidoptera* of Cheshire and North Wales. The work is undertaken by Mr. G. O. Day, Mr. R. Newstead, Dr. Herbert Dobie, and Mr. J. Arkle. Mr. Day, as editor, will be glad to receive records for Cheshire, Flintshire, Denbighshire, Carnarvonshire, and Anglesea, and on application will supply lists for marking. His address is—G. O. DAY, Parr's Bank House, Knutsford: January, 1901.

The "Curtis" Collection of British Insects.—During a brief visit to Melbourne in November last I was enabled, by the kindness of Prof. W. Baldwin Spencer, F.R.S., the Director of the Victorian National Museum, to inspect the collection of British insects formed by the late John Curtis. Entomologists at home may be interested to learn that in spite of the age of this fine collection, in which there is probably no single specimen less than fifty years old, and very many date from the beginning of the nineteenth century, it is still in a marvellously good state of preservation. It is true that in the course of years the *Lepidoptera* have inevitably lost a little of their original freshness of appearance, but most of the other insects, especially the *Coleoptera*, look almost as if newly caught, except for the antique style of setting. All the drawers which I examined were quite free from dust, and I could detect no trace of mites, mould, grease, or verdigris on any of the specimens. The cabinets, too, testified to the original high quality of their material and workmanship by the perfect smoothness and freedom with which each drawer fitted and moved in its place. The climate of Melbourne is evidently highly favourable to the preservation of insects, and although it may be a matter for regret that this important collection, with its numerous types, has for so many years been deported from our shores, it cannot fail to be gratifying to find it so well cared for and so highly appreciated in its Australian home.—J. J. WALKER, H.M.S. "Ringarooma," Sydney, N.S.W.: December 3rd, 1900.

Review.

BRITISH FLIES, Vol. viii: by G. H. VERRALL, P.E.S (*Platypezidæ*, *Pipunculidæ* and *Syrphidæ* of Great Britain, with a synonymic catalogue of the European species). Pp. 780, royal 8vo, with 458 figures in text (by J. E. Collin, F.E.S.), and Portrait of Meigen. London: Gurney and Jackson, 1901 (all published).

For some years past Dipterologists in the British Isles have been looking forward to the publication of the volume now under review; but it is feared that many (like the writer) will lay it down with a feeling of disappointment: for a first hurried glance through the pages gives one an idea of want of care in

the revision of proofs; sentences and paragraphs have been passed by our author which would have been the better for remodelling. This want of care in editing is one of the most serious faults in the volume.

On settling down to study the volume in detail, the terminology employed soon obtrudes itself on our notice. Our author (it is believed) was a pupil in Dipterology of the late Dr. H. Loew, and it is to be regretted that in this matter he has departed from the teachings of his master. When Loew wrote Part I of the Monographs of the *Diptera* of North America he was probably near the zenith of his reputation, and the deliberate conclusions then arrived at by him should not be lightly thrown aside. What particularly commended itself in the Loewian terminology was its simplicity; the small cross vein is present in the wings of almost all *Diptera*, and the recollection that it stood on the discal cell, connected the 3rd and 4th longitudinal veins, and formed one of the boundaries of the 1st posterior cell, gave a starting point from which to identify the other veins and cells. According to our author's terminology, as explained at p. 14, we are expected to cumber our brains with such terms as subcostal, radial, cubital, discal, and postical veins, in lieu of the old familiar 1st, 2nd, 3rd, 4th, and 5th longitudinal veins, while other old friends, such as small cross vein, posterior cell, &c., masquerade in new guise. All these innovations are opposed to the terminology almost universally employed, and probably most Dipterologists will agree with the writer in looking upon the use of them as a decided step of retrogression.

The descriptions (with the exception of the faults of editing already referred to) are excellent, probably the best being those dealing with the *Platypezidae*, *Pipunculidae*, and with the genus *Platyckira*; in all of these order has been evolved out of chaos. Of the descriptions generally nothing but praise can be said, though a mild protest may be raised against the use of the comparative degree in the manner so often employed by our author, and also against the use of such terms as "tip half," "shelved off," &c.; these, after all, are faults of style rather than faults of scientific description. A word of praise too must be given to the "keys," which are a pleasing contrast to some we have seen lately from the pens of Meade, Williston, Brauer and Bergenstamm. &c.; size is an unsatisfactory character for use in a key—possibly in the *Pipunculidae* no better character was found available. Regarding the geographical distribution of species in the British Isles it may be noted that many common species reach a higher latitude than anything given by our author; e. g., *Chrysoclamys cypræa*, *Sphegina clunipes*, *Arctophila mussitans*, *Chrysotoxum bicinctum*, among them, all occur at Golspie, while some of them get so far north as Thurso, further, it is noteworthy that throughout the volume only one single Irish locality is given.

Congratulating Mr. Collin on his illustrations is a pleasing task; the combination of skill with the pencil and knowledge of Dipterology is given to comparatively few; for a young artist to have scored so distinct a success at his first attempt is indeed a subject for congratulation.

The Synonymic Catalogue will probably receive more criticism on the Continent than in this country, where workers at foreign *Diptera* are few and far between; still attention may be drawn to the following points:—*Eristalis punctifer*, Walker, is a synonym of *E. quinquelineatus*, not of *E. leniops* as recorded by our author;

Calicera Fagesii is probably a synonym of *C. rufa*; but *C. Fagesii* and *C. Bertolonii* are (almost to a certainty) synonyms of one insect, the latter should therefore stand or fall with the former.

The general get up of the volume is most excellent; in fact, the type, &c., may almost be said to be "too good!" This, combined with the addition of the Synonymic Catalogue, has probably added materially to the cost of the volume, and put it out of reach of many to whom shillings are of consequence.

In conclusion, we congratulate our author on the issue of this volume, which, if not perfect, is far superior to anything that has been published before, and we look forward to the publication of other volumes in due course, though we trust they will not be so long in preparation as vol. viii has been, otherwise our author's prospects of life will have to be far beyond the years allotted to ordinary mortals.—J. W. YERBURY, Army and Navy Club: *February 4th*, 1901.

Obituary.

Baron Michel Edmond de Selys-Longchamps.—As briefly announced in our No. for January, Baron de Selys passed away on the 11th of December, 1900, full of years and honours. He came of an old family, and was the son of Baron Michel Laurent de Selys-Longchamps. He was born on May 25th, 1813, at Paris, where his father was attending to parliamentary duties. For some considerable time he had suffered from a growth in the bladder, which at last became malignant; but his vitality was extraordinary, and in the summer of last year he insisted upon attending the Meetings of the Ornithological Congress in connection with the Paris Exhibition, and there is reason to believe that the fatigue in connection therewith hastened the end; but since that Congress the writer of this notice had a letter from him in which was no allusion to being unwell. The family name was De Selys, the affix Longchamps being derived from the little village of Longchamps-sur-Geer (near Waremmé), where the family had large estates and a park (with lake) and chateau. Baron M. E. de Selys was educated at home, and was never sent either to school or college. In 1838 he married Sophie Caroline, the daughter of the Marquis d'Omalus d'Hallo, the famous Belgian geologist, and leaves a numerous family (children, grandchildren, and great-grandchildren) to mourn his loss: he had been a widower since 1869. He was bred as it were to political life, commencing as Communal Councillor for Waremmé in 1846 (which position he retained all his life); he entered the Belgian Senate in 1855, and remained for life; from 1880 to 1884 he was President of the Senate. For many years he was regarded as the head of the Liberal (= anti-clerical) party in Belgium: notwithstanding his advanced years, he attended to his parliamentary duties practically to the last. His younger son (Walthère) is Senator for Namur, the elder (Raphael) prefers the less exciting life of a country gentleman.

From early childhood Baron de Selys was passionately devoted to Natural History, at first probably more especially to birds, and he once showed the writer a book of coloured figures of Belgian birds, nicely executed, done by him before he was 16. This love of birds lasted all his life, and attached to the chateau at Waremmé is a Museum in which his collection was kept: this collection comprised many great rarities, including a Great Auk and egg, &c. He also devoted much attention to the smaller mammals, and wrote much concerning them. As an ento-

mologist he occupied himself with the *Lepidoptera* and *Orthoptera* of Europe and the *Neuroptera* (especially *Odonata*) of the world. His first publication seems to have been made in 1831 (when he was 18), and consisted of a Catalogue of the insects of the environs of Liège in a local work. In 1837 he published a List of the *Lepidoptera* and Dragon-flies of Belgium, and from that date forward his publications may be said to have flowed in a continuous stream, mainly on *Odonata*. It is impossible to enumerate more than a few. The "Monographie des Libellulidées d'Europe" (1840) was followed by an enlarged supplement, under the title "Revue des Odonates d'Europe" (1850), which is still most useful. Then there are the two large Monographs of "Gomphines" and "Caloptérygines," and Synopses of the "Gomphines," "Caloptérygines," "Agrionines," "Cordulines," and (generic only) "Æschnines:" the only subfamily not touched in a synoptical way being the difficult "Libellulines." Then there are numerous local faunas for Dragon-flies, appendices to works of travel, &c., &c., and there is reason to believe he has left a mass of unpublished material. About the year 1845 he made the acquaintance of the late Dr. Hagen (commencing a friendship which lasted till the death of the latter), and their joint authorship is acknowledged in the "Revue" and the two Monographs above quoted. Hagen also aided largely in the "Synopses," &c., and there are some cases in which "Selys" is given as the author of species in Kirby's "Catalogue" which should properly be attributed to Hagen, for on examination it will be seen that not only did de Selys place Hagen's name against the species, but stated that he had himself never seen the insects, and that the descriptions were written by Hagen. But these are only few compared with the enormous number of species first introduced by de Selys, a number (probably about 1000, or one half of those now known) that can be appreciated by glancing through the pages of Kirby's useful Catalogue just mentioned. Naturally "*un homme distrait*" (as he himself often used to say), it is very possible that the large increase in the number of workers in *Odonata* of late somewhat disconcerted him, and this same trait caused him to affix names to all specimens in his collection considered to represent new species, whether he described them or not, the result being that in his writings he occasionally compared a species to some other by name, forgetting that the latter had not been published: this same distraction also occasionally caused comical *contretemps* in daily life.

It was in January, 1869, that the writer first corresponded with de Selys. Since that time several hundreds of letters passed between us, and if that correspondence was somewhat less constant latterly the fault was the writer's. Moreover, for many years the writer paid a visit almost annually to Belgium, either to stay there, or *en route* in going to or returning from elsewhere. These visits usually commenced with a few days' study at Liège, followed by further days *en famille* at Waremme, which had a great charm about them; perfect freedom from restraint, unbounded hospitality, and the conversation of a delightful family, heightened by occasional sallies of dry humour from our host himself. Also, in company with de Selys *en famille*, or as part of a scientific body (entomologists, botanists, &c.) long excursions were made (sometimes lasting several days), and from this cause the writer got to know more about odd corners of Belgium than falls to the lot of most foreigners. Notwithstanding wide difference of opinion on certain points, the writer and his venerable friend were so *liés* that it is impossible to avoid much of a personal nature in this notice.

He travelled much, having been nearly all over Europe: he paid five or six visits to this country. He read English easily, but scarcely allowed himself to speak it. And he understood most of the Latin languages (often conversationally); the Teutonic were less familiar to him. He became a Member of the Belgian Academy in 1841, and was Honorary Member of nearly all the Entomological Societies in Europe, including London in 1871. Nowhere will he be more missed than at the Société Entomologique de Belgique, which he helped to found in 1856, and which he aided ever since in every possible way, and of which he for many years had been Honorary President.

From information received there seems to be some slight doubt as to the ultimate destination of the invaluable general collection of *Odonata*, &c., and yet concerning the minor collections the most minute instructions are given. The writer ventures to suggest that the proper destination is the Musée d'Histoire Naturelle at Bruxelles. —R. McLACHLAN.

Society.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: November 22nd, 1900.—Mr. W. J. LUCAS, B.A., F.E.S., President, in the Chair.

Mr. Cane, of E. Dulwich, was elected a Member.

Mr. Adkin exhibited a varied series of *Abraxas grossulariata*, and contributed notes. Mr. Ashby, a long and varied series of the Coleopteron, *Onthophagus vacca*, from Willesden. Mr. F. M. B. Carr, a series of *Taniocampa gothica*, taken at sallow in the New Forest at Easter in 1899 and 1900; and a pair of *Trichiura cratagi* bred from larvæ taken at Hailsham. Mr. Turner, a number of species of *Lepidoptera*, and a few species of other Orders from Dawlish, and read notes on the fauna of that place, entitled, "Desultory Days at Dawlish in August, 1900."

December 13th, 1900.—The President in the Chair.

Mr. Nottle, of Lower Sydenham, and Mr. R. L. Hewitt, of Lewisham, were elected Members.

Mr. Turner exhibited, on behalf of Mr. Tunaley, a specimen of *Spilodes palealis*, taken in the Isle of Wight in July, together with five specimens of *Acherontia Atropos*, bred from larvæ taken at Porlock. Mr. R. Adkin, living examples of *Caradrina ambigua*, bred on December 12th from South Devon ova, and presented them to the Society's collections. Mr. Clarke, a specimen of *Loeusta viridissima* from Deal, and presented it to the Society's collections. Mr. Turner, large and well bred examples of *Ocneria dispar*. Mr. Sich, an example of *Oporabia autumnata*, bred November 7th from a larva taken on elm in Sussex. Mr. Manger, a number of species of *Rhopalocera* taken in and around Ladysmith, Natal, including *Pieris hellica*, *Colias Electra*, *C. Hyale*, *Pyrameis cardui*, *Precis Sesamus*, *Teracola Johnstoni*, &c. Mr. MacArthur, a large number of *Arctia Caja*, including one with very pale wings. Mr. Tutt, specimens of an Alpine form of *Polyommatus Dorilis*, and made remarks on the double-broodedness of the species. Mr. Kemp, a Psocid, *Clothilla picea*. Mr. Moore, a specimen of *Ophion luteum*, and said that he frequently took this species of Ichneumon in October and November. Dr. Chapman, a number of specimens, prepared to show the various points in his paper, "Some Wing Structures in *Lepidoptera*."—H. J. TURNER, *Hon. Secretary*.

OBSERVATIONS ON *COCCIDÆ* (No. 19).

BY R. NEWSTEAD, F.E.S.,

CURATOR OF THE GROSVENOR MUSEUM, CHESTER.

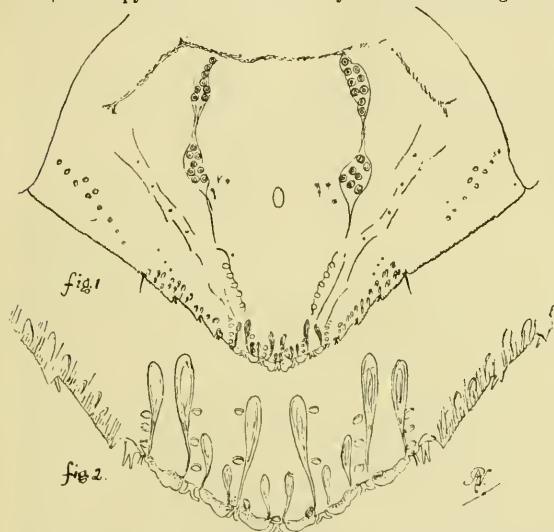
(Continued from 2nd series, vol. xi, page 251, October and November, 1900).

ASPIDIOTUS ALIENUS, n. sp.

♀ puparium sub-circular, flat, convex; colour pale purple-brown, margins paler; larval exuviae shining black, secretory covering dull brown, forming a central point and concentric ring. Ventral scale rather strong, and generally remains attached to the food-plant. Greatest diameter, 2—2.25 mm.

♀ adult pyriform. Rudimentary antennae forming tubercle above basal curved

hair. Pygidium (figs. 1, 2) rather pointed. Lobes in 3 pairs, of which the median pair are sometimes slightly the longest; the 3rd broadest, have the margins sloping upwards. Beyond the last lobe the margin is produced into 3—4 (usually 3) equidistant angular processes, with the margin between them finely crenulated. Plates between the lobes broadly bifurcate.



Circumgenital glands in 4 groups: anterior laterals of 8—9, posterior laterals of 8—9. Club-shaped glands in 6 pairs, the central, 3rd and 4th pairs being less than half the length of the others.

Hab.: on *Cattleya Skinneri*, under glass, London. Collected by Mr. E. E. Green, to whom I am indebted for the specimens.

The form of the puparia, and also the deeply serrated margin of the pygidium somewhat resemble that of *Aspidiotus biformis*, Ckll.; but it is much more closely related to *A. scutiformis*, Ckll., and *A. Boweri*, Ckll. It differs, however, from either of the latter by the unusually broadly divergent, bifurcate, plates, and the regular and deeply serrated margin, which latter character resembles the serrations in *A. paulistus*, Hempel.

ASPIDIOTUS ARTICULATUS, Morgan.

Aspidiotus articulatus, Morgan, Ent. Mo. Mag., vol. xxv, pl. v, fig. 5, p. 352.

Mr. E. E. Green found examples of this interesting species at Worcester Park, Surrey, June, 1899, on *Ixora coccinea*. It is new to the list of *Coccids* found in this country.

MYTILASPIS POMORUM, Bouché, var. *CANDIDUS*, *n. var.*

Puparium of adult ♀ snow-white, very elongate, and of uniform width throughout, and convex; texture much less horny than typical puparia.

This variety shows the most remarkable deviation from the type I have yet seen. It was discovered by Mr. E. E. Green, at Halfway Bridge, Petworth, Sussex, September 1st, 1899. He says: "I enclose a single specimen of a *Mytilaspis*, with a snowy-white scale, which I found a few days ago on hawthorn here. Do you think it is a distinct species, or only a var. of *M. pomorum*? Irrespective of the colour, the texture of the scale appears to me rather different." The ♀ agrees in every detail with typical *M. pomorum*.

DIASPIS CARUELI, Targ. Tozz.

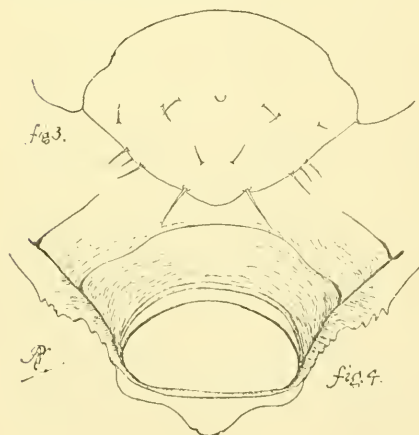
I have this species, new to Britain, from the Royal Gardens, Kew, on *Juniperus virginiana*, March, 1898. It is highly probable that it is indigenous to this country, as it occurred upon a home-raised plant, which was very badly infested.

FIORINIA KEWENSIS, *n. sp.*

Puparium of adult ♀ elongate, and much narrowed at the anal extremity; composed externally of a closely felted white material. The removal of the felted secretory covering reveals the highly chitinated exuviae of the second stage ♀, which is usually of a pale castaneous colour. Larval exuviae at cephalic extremity, yellow or yellowish-brown.

Long., .75—1 mm.

Pygidium of second stage ♀ (fig. 4) with an ovate valve, which affords a means of escape for the imprisoned larvæ.



Adult ♀ elongate, much smaller than the insect of the previous stage, and completely enclosed within the moulded skin of the latter. Rudimentary antennæ with 3 long spiny hairs. Spiracles encircled by parastigmatic glands. Pygidium (fig. 3), without grouped glands, furnished with about 8 long spiny hairs at the margins, and 4--6 others on the dorsal area. Anal opening central.

Long., .50—·70 mm.

Puparium of the ♂ very elongate, rounded, convex, and widest immediately behind the larval exuviae, and more or less pointed at the posterior extremity; white and closely felted. Long., 50—70 mm.

Hab.: on *Howea Fosteriana*, in temperate house, at the Royal Gardens, Kew, March, 1898. Received from the Curator, Mr. G. Nicholson.

This species has the singular habit of living in little colonies or family parties, which generally consist of two or three females and several males. The insects were very abundant on the leaves submitted to me. It seems a well-marked species, and hitherto undescribed.

LICHTENSIA EPHEDRE, *n. sp.*

♀ ovisac pure white and very closely felted; very elongate, transversely and longitudinally convex, or boat-shaped.

Long., 8—10 mm.; wide, 3 mm.; greatest height, 2.50—3.50 mm.

♂ puparium (scale) glossy-white, of the ordinary *Lecanoid* form.

Long., 2.25 mm.

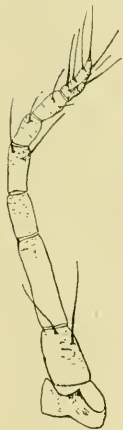


fig. 5.

♀ adult ovate, marginal spines short, blunt, equidistant, and continuous, rarely two examples are placed together, the rest of the epidermis remarkably free from spines, hairs, or spinnerets. Spiracles trumpet-shaped. Mentum monomorous. Anal dorsal lobes normal. Anal ring with 8 long hairs. Antennæ (fig. 5) of 8 joints, of which 3 is long as 4 and 5 together; formula, 3, 2 (4, 5, 8), (6, 7), 1. Legs slender; digitules to tarsi long, stout, are of uniform width throughout, with truncate ends, those of the claw scarcely shorter, but stouter, dilate at apex, and finely but unequally divided and pointed.

Ova. Crushed examples had stained the ovisacs bright crimson.

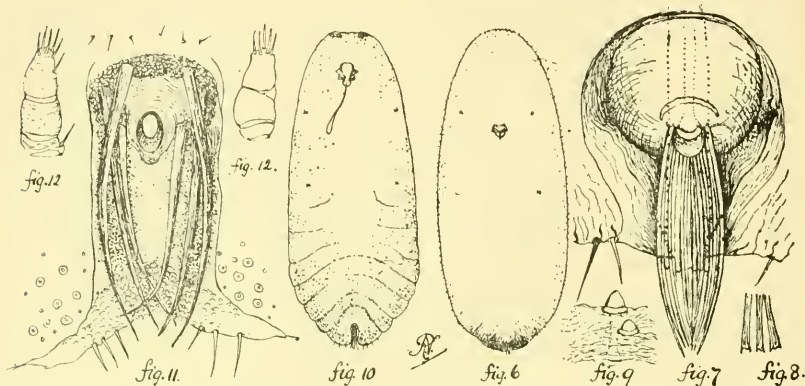
Hab.: on *Ephedra alte*, C. A. Meg. (*Cretaceæ*), and apparently peculiar to this plant. "Gathered in the Waddy Gerrâwy, Helonan, 15' South of Cairo, February, 1900.

The specimens were kindly forwarded to me by Admiral R. W. Blomfield, who also furnished the following particulars:—"The specimens were really discovered by a very old friend, Dr. George Schweinfurth, the African traveller, who accompanied me on the occasion. Oddly enough the other member of our party was an even older African traveller than Dr. S., viz., Mr. Francis Galton."

The distinctive features of this insect are the form and size of the ovisac, and the curiously divided digitules to the claw, the latter being a character I have not hitherto observed in any other *Coccid*.

ACLERDA JAPONICA, n. sp.

Adult ♀ (fig. 6) covering all unprotected portions of her body with closely felted white wax, and those portions, dorsal and ventral, in contact with the



food-plant, with a thin white mealy wax; this arrangement of secreted matter, and the food-plant forming the ovisae, which must be considered incomplete.

Form elongate, about three times longer than broad, slightly widest towards anal extremity. Antennæ and legs absent. Rostrum placed about one-third of the distance between the extremities. First pair of spiracles just above rostrum, second pair considerably below it and almost central. Anal cleft (fig. 7) deep, apex forming more or less distinct angular processes, quite spine-like in some individuals; dermis on either side strongly chitinised, crenulated at the margins, and just within the latter an irregular double series of circular spinnerets, divided from each other by irregular wavy striae. Anal ring (fig. 7) with 20—24 very long flat hairs, so arranged at the base that they touch each other, and form in section about two-thirds of a cylinder; the ring itself is attached to a much larger hemispherical organ which lies within a large circular cavity. In some of the specimens there are 4—6 curious flattened hairs with emarginate ends (fig. 8) proceeding from the cleft, which appear to be attached to the hemispherical organ supporting the anal ring. Dermis at margin with many acorn-shaped spines (fig. 9).

Long., 4—8 mm.

Hab.: beneath the leaf sheaths of *Arundinaria japonica*, under glass, Broxbourne, Herts, on recently imported plants, causing the sheaths to swell out at those parts which cover the insects.

The extraordinary vitality of a female of this species is certainly not the least remarkable feature it possessed. The first batch of specimens reached me on January 27th, the second on February 15th; after selecting a series from them for study, the remainder were placed in a cardboard box and set aside in a perfectly dry place until the September following, when I found one of the females still alive, and apparently looking none the worse for its lengthy fast of eight months! Certain of the *Monophlebid*s have been known to survive

long extended fasts; and I believe the late Mr. Maskell was the first to call attention to this peculiar trait in the *Coccidæ*, but this species certainly beats all previous records that are known to me.

ANTONINA SOCIALIS, n. sp.

Ovisac of ♀ usually complete, and wholly or partly hidden beneath the leaf-sheaths of the bamboo; white, elongate, ovate, flat, and closely felted, but brittle.

Long., 5—8 mm.

Adult ♀ (fig. 10) viviparous; elongate, about 3 times longer than broad; legs absent. Antennæ (fig. 12) comparatively long, of 3 joints, basal joint shortest, 2 and 3 of nearly equal length, the latter with 5—6 stout hairs at the tip, and a single one on the first, articulations very distinct. Rostrum inserted about one-ninth of the distance between the extremities, mentum uniaarticulate, loop of filaments extending midway between the spiracles; 2nd pair of the latter central, 1st pair equidistant between them and the cephalic margin. Anal ring (fig. 11) with 6 hairs lying within a trough-shaped cavity. Dermis above with circular spinnerets, which increase in number towards the margins, and on the abdominal segments, those at the posterior extremity becoming gradually larger and more numerous.

Long., 4.8 mm.

Larva: antennæ of 6 joints, of which 6 is much the longest, formulæ, 6 (1, 2, 3, 4, 5). Anal lobes well formed and furnished with several spines. Anal ring of 6 hairs recessed from the margin.

This species may be recognised by its comparatively long antennæ and the curious flattened hairs.

Hab.: living in company with the preceding species under the leaf-sheaths of *Arundinaria japonica*, under glass, Broxbourne, Herts, on freshly imported plants. Received from the Editor of the Gardeners' Chronicle, Dr. Masters, January 26th, 1899.

The following particulars concerning the form and colour of the insects in life were made when they first reached me. Unfortunately I did not then discover there were two species living together, and I cannot now eliminate the characters of the respective species with any certainty:—

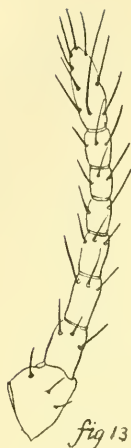
“Form:—Distinctly elongate, cephalic portion more or less clypeate, with the margins thin and slightly produced; convex and slightly widest in the middle. The whole dorsal area presenting a remarkable resemblance to the convex side of a grain of wheat.”

“Colour:—Dirty white, pale to dull ochreous or brownish, abdominal extremity red and brown.”

DACTYLOPIUS LUFFI, n. sp.

Ovisac of ♀ rather closely felted, long, cylindrical, and of equal width throughout; ♀ remaining, uncovered, at the cephalic extremity.

Long., 3—4 mm.; diameter, .75 mm.



♀ adult very active, constructing ovisac at period of gestation; mealy, but without marginal appendages; segmentation distinct; form rather short, ovate, anal extremity emarginate. Anal lobes indicated by a single hair. Anal ring of 6 long hairs, intervening spaces with irregular ovate glands. Dermis thickly set with circular spinnerets, forming broad bands on the abdominal segments; there are also numerous short hairs, but these are much fewer in number than the spinnerets. Antennæ (fig. 13) of 8 joints, of which the last is much the longest; formula, 8, 1, 2, 3, 4 (5, 6, 7), all the joints with fine hairs. Mentum biarticulate, rather pointed, joints with minute hairs on both surfaces. Legs rather long, hairy; digitules to claw slightly dilate, those of the tarsi simple.

Long., 1.50—2 mm.

Hab.: on the lower stem and roots of *Lepigonum rupestre*, Guernsey, "near the west coast of the Island," September, 1899. Discovered by Mr. W. A. Luff.

Accompanying the specimens Mr. Luff sent the following particulars:—"I herewith enlose *Coccids* (*Rippersia*?) found at roots of *Lepigonum rupestre*, not under stones, but in sandy soil. They occur in such thick clusters, and are so lively, that I thought they might possibly be something new" (*in litt.*). The agility of these little "mealy bugs" was quite remarkable, and certainly not equalled by any other *Coccid* I have observed. From this habit and their small size, I thought it possible they might be immature, but I found several had already begun to "spin," and in the course of a week or so the rest of them had constructed their ovisacs; most of them on the roots of the *Lepigonum*, which became quite white with them, and many others on the sides of the box in which they were imprisoned.

This minute species is apparently new, and I have much pleasure in dedicating it to its discoverer, Mr. W. A. Luff, whose work on the fauna of the Channel Islands is well known and appreciated.

DACTYLOPIUS FORMICETICOLA, *n. n.*

Dactylopius formicarius, Newst., Ent. Mo. Mag., 2nd ser., vol. xi, p. 249, October, 1900.

The name *D. formicarius* comes too close to *Dactylopius formicarii*, Ehrhorn (Canad. Ent., vol. xxxi, Jan., 1899, p. 6), and must be suppressed. I regret I had not seen it was pre-occupied until my attention was called to the matter.

Chester: January, 1901.

MOTH CATCHING BY ELECTRIC LIGHT AT THE BOER CAMP,
DIYATALAWA, CEYLON.

BY E. ERNEST GREEN, F.E.S., GOVERNMENT ENTOMOLOGIST.

At the invitation of one of the officers of the regiment guarding the Boer prisoners at Diyatalawa, I visited the camp to see the swarms of moths attracted each night by the powerful electric lamps erected round the Boer enclosure. I spent two nights at this work (December 15th and 16th), and had what was to me a most unique experience.

The Boer camp is situated in a small hollow in the midst of the undulating patna land at Diyatalawa, at an elevation of about 4000 feet. The electric lamps, of which there are 38, at an average distance of 85 yards from each other, are visible from the surrounding hills within a radius of about three miles, and where there are no hills to interrupt the view, the glare of the lights must be noticeable from a much greater distance. I am told that at Hakgala, some ten miles distant, the individual lights can be detected on a clear night. The country for miles around is completely open, consisting of the wiry patna grass and the usual small patna plants. With the exception of a few small patches of scrub in an occasional hollow, there is no wooded land that could provide breeding ground for the myriads of moths that are nightly attracted. The nearest forest is fully two miles distant. Yet it is remarkable that the greater number of moths seen and captured are such as feed, in the larval stage, on plants and trees not present on the patnas.

The lamps, I am informed, are of the "Broekie Pell" pattern, each lamp of a nominal 2000 candle power. The standards, made of sawn timber (7 in. by 7 in.), about 25 feet high, form an admirable resting place for the dazzled moths.

The lamps are lighted at dusk which, at this season, is soon after 6 p.m., but it is some little time before the insect crowd assembles. The fun was in full swing when we started on our rounds at 9 o'clock. From a little distance every lamp was seen to be surrounded by a whirling swarm of brilliantly illuminated objects. As we approached the grass was dotted with dazzled moths, and for several yards round the foot of the post the ground was simply carpeted with them. It became impossible to walk without treading upon them. The post itself was encrusted with moths of all sizes, from the large Saturniids and Sphingids to the smallest Noctuids and Pyrales. Very few Tineids

were noticed. On one single post I counted 39 specimens of the handsome hawk moth *Pseudosphinx discistriga*, while *Daphnis hypothous* and *Theretra nesus* almost rivalled the *Pseudosphinx* in numbers. But by far the most prominent species were the Noctuids, *Oxyodes scrobiculata* and *Maceda mansueta*. These two species were present in tens of thousands. The moths rested most thickly high up on the post close to the lamp. A pair of Zeiss's field-glasses proved most useful for scrutinizing this part of the post. It was a wonderful sight to see all these handsome moths in such close proximity to each other, the smaller species filling up the interstices between the wings of the larger, or even superimposed upon them.

We found that a butterfly net was both inefficient and unnecessary. A better instrument was what we nicknamed the "tickler." It consisted of a long pole to the top of which was spliced a thin pliant twig, the whole resembling a fishing-rod. By careful manipulation the moths could be induced to transfer their hold to the twig and could then be gently lowered to the ground, or, if dislodged, they merely fluttered down and allowed themselves to be handled and examined without attempting to escape. The three large killing bottles with which I had provided myself were soon overcrowded, and resource was had to chloroform, a few drops of which, placed on the under surface of the largest moths, gave them their quietus, when they were folded in soft paper and put away in boxes with more of the chloroform to keep them asleep. Only strictly limited series were taken, and any individuals that showed interesting variations. Thousands of magnificent specimens (it was remarkable that nearly all the insects were in perfect condition) were left, though it is feared that few lived to repeat their frolic on the following night, and certainly none would return to their breeding grounds. Most of the lamps are set in the direct track of the sentries, and the heavy foot of the British soldier extinguished many a glorious specimen that would have gladdened the heart of an English entomologist. The path was decorated with a mosaic of variegated wings and bodies crushed into the mud.

I was surprised to find that on the occasion of my visit neither bats* nor goatsuckers were availing themselves of the feast that was ready for the taking. Only an occasional toad was deliberately loading itself up with the smaller moths that fluttered to the ground.

* Since writing the above, I hear that, on a subsequent occasion, bats were present in considerable numbers.

Several of these toads had fallen victims to the regimental boot and been added to the pattern impressed on the path. Others had filled themselves to repletion and when touched turned over on their backs and gazed at the brilliant light in a condition of semi-hypnotism.

Some thirty lamps or more completed the circuit. Each one of these was visited in turn. The sentry-boxes also, built of white pinewood, amply repaid careful inspection. By the time the round had been accomplished it was past midnight. I was warned, however, that an early morning visit was advisable, before the crows, sparrows and swallows had commenced their work of destruction. So we started again at daybreak, and found the moths almost as we had left them, except that they were all at rest, and selection could be made with greater ease and deliberation. But now we were not the only collectors. An army of birds (sparrows and swallows, assisted by an occasional crow) was busily at work. The sparrows fluttered against the posts, knocking off a cluster of moths, and pounced on such as fell to the ground; while the swallows exterminated those who tried to escape by flight. We amused ourselves by starting an occasional flight of moths and observing how the swallows unerringly avoided the several species that were protected by an offensive smell, such as *Hyssa complana*, *H. producta* and *Pelochyta astrea*. This last insect, when handled, emitted a quantity of evil-smelling froth from each side of the prothorax.

The same performance was repeated on the second night when, if possible, an even larger assemblage of moths was present. It is difficult to understand whence such myriads of insects could be drawn each night, never to return to lay their eggs. A long continuance of these conditions must inevitably lead to the extinction of many species from that district. The attraction has now been in force since the middle of August last. The crowd is denser on some nights than on others. The moths do not assemble to any extent when a cold wind is blowing, and strong moonlight is a deterrent. Warm damp nights, after rain, produce the heaviest crops.

It was particularly noticeable that very few purely local species were represented. In fact, *Sangatissa subcurvifera* was almost the only moth that does not occur in the Kandy district (at half the elevation of Diyatalawa).

The following more striking species were noticed :—

SATURNIIDÆ: *Actias Selene*, Hübn. BOMBYCIDÆ: *Gunda sikkima*, Moore.
EUPTEROTIDÆ: *E. fasciata*, Moore; *Sangatissa subcurvifera*, Wlk. SPHINGIDÆ:

Acherontia Lachesis, Fabr.; *Chærocampa Celerio*, Linn. (this insect was found to make a squeaking noise, much like the well known note of *Acherontia*); *Daphnis Hypothous*, Cram.; *Theretra Nessus*, Drury; *Protoparce convolvuli*, Linn., and *Pseudosphinx discistriga*, Wlk. NOTODONTIDÆ: *Stawropus alternus*, Wlk., and *Cerura liturata*, Wlk. COSSIDÆ: *Duomitus leuconotus*, Wlk., and *Zeuzera postercisa*, Hmps. LASIOCAMPIDÆ: *Trabala fishau*, Lef. LYMANTRIDÆ: *L. grandis*, Wlk. ARCTIIDÆ: *Chionæma subornata*, Wlk., and *Pelochyta astrea*, Drury. NOCTUIDÆ: *Arsilasis plagiata*, Wlk.; *Leocyma sericea*, Hmps.; *L. biplaga*, Wlk.; *Callyna siderea*, Guen.; *Ramadasa Pavo*, Wlk.; *Hyblæa constellata*, Guen.; *Blenina donans* and *B. accipiens*, Wlk.; *Argyrothripa grisea*, Hmps.; *Hypocala Moorei*, Butl.; *H. lativitta*, Moore; *Patula macrops*, Linn.; *Polydesma leprosa*, Hmps.; *Ophiura cuprea*, Hmps.; *Hypætra apicalis*, Moore; *Ischyia Manlia*, Cram.; *Hanodes aurantiaca*, Guen. (not previously recorded from Ceylon); *Spirama retorta*, Cram.; *Ophideres salanimia*, Fabr.; *O. ancilla*, Cram., and *O. fullonica*, Linn. Amongst GEOMETRIDÆ, the gem of the evening was *Uliocnemis partita*, Wlk. (also new to Ceylon). The PYRALIDÆ were notably represented by *Pygospila Tyres*, Cram.; *Neurina Procopia*, Cram.; *Glyphodes glauculalis*, Guen.; *G. stotalis*, Guen., and *Botiodes asialis*, Guen., with many less conspicuous species. There were besides several novelties that I have not yet been able to determine.

Other Orders of insects, chiefly *Hemiptera*, were represented. The giant water-bug, *Belostoma indicum*, was dashing about in every direction, while the brightly coloured *Catacanthus incarnatus*, and the stink-bug par excellence, *Nezara viridula*, were to be seen on every post. *Scarabæids* and water-beetles were attracted in considerable numbers, and a few specimens of the *Anopheles* mosquito were noticed.

With such results from only two nights' work, what could not a systematic collector, stationed on the spot, effect in the course of the year? Each month would bring a partial change of species.

Some of the Boer prisoners have occupied their leisure in catching the moths that settle within their bounds, and have in this way amassed quite considerable collections. I noticed several rarities in their boxes, notably the large Eupterotid, *Apona shevaroyensis*, Moore. I also remarked a magnificent *Noctuid*, as large as, or even larger than, *Patula macrops*, which was quite unknown to me, and which I have been unable to recognise in "The Moths of British India." I tried to induce the wily Boer to sell, but money was no object to him, and he refused to part with his treasure for any consideration. He expressed his intention of sending his collection to his wife in London. Perhaps this apparently unique specimen may yet find its way to the British Museum. These men were working under great disadvantages. The lamps are outside the barrier, and only a small percentage of the moths settle within their lines. Then they have to be within doors soon after sundown. They have no proper apparatus for collecting and preserving their specimens, but have manufactured for themselves rough setting-boards and store-boxes. In the face of all these difficulties several collections of real merit have been formed.

Peradeniya, Ceylon:

February, 1901.

SOME REMARKS ON THE BRITISH SPECIES OF *LIMNIUS*.

BY G. C. CHAMPION, F.Z.S.

My friend Mr. J. Edwards has recently sent me for examination four *Limnii*, from Norfolk, apparently belonging to as many species, of which he enclosed enlarged photographs, taken by himself. If these specimens are to be referred to two species only, as seems probable, there must be considerable variation in the sculpture, &c., of the members of this genus, and it is therefore worth while calling attention to them. The chief differential characters noticed by Mr. Edwards between these four insects, which for convenience are here referred to under the numbers 1—4, are as follows:—

1. Elytra coarsely punctate-striate on the disc (the interstices appearing convex), about $2\frac{1}{2}$ times longer than the thorax; thorax shining on the disc.
2. Elytra sculptured as in No. 1, about $2\frac{1}{2}$ times longer than the thorax; thorax dull and rugulose on the disc.
3. Elytra finely and somewhat shallowly punctate-striate on the disc, the interstices flat, each with a distinct single series of punctures.
4. Elytra as in No. 3, but without a distinct single series of punctures on each interstice.

No. 1 is the common species known under the name of *L. Dargelasi*, Latr. (= *tuberculatus*, Müll., *lacustris*, Steph., *variabilis*, Steph., etc.). No. 2 was found by Mr. Edwards at Honing, Norfolk, on July 10th, 1890, when collecting in my company. There is a specimen very like it in Dr. Power's collection, and another in that of Stephens. Compared with *L. Dargelasi* the rugulose and relatively longer thorax give the insect a somewhat different facies. Nos. 3 and 4 are, no doubt, forms of *L. troglodytes*, Gyll. (= *fluviatilis*, Steph.), and they can be matched in a series of that species from Slapton in my collection. The single interstitial series of punctures shows very clearly in Mr. Edwards' photograph of No. 3. His specimen of the latter was taken near Norwich in April, 1882, and Stephens' *L. fluviatilis* is also stated to be from Norfolk. I have taken *L. troglodytes* in the New Forest with *L. Dargelasi*, and at Soham, Cambs., and have seen examples of it, from Horsell, mixed with the series of *L. rivularis* in the Power collection at the British Museum.

L. rivularis, Rosenh., is considerably smaller than any of the above mentioned forms; this insect has also been found by Dr. Power in my own neighbourhood, but I have not yet met with it in the

district. Mr. J. J. Walker and myself have taken the species in abundance at Algeciras, Spain. *L. neuter*, Kuwert, from the south of Europe, a specimen of which has been lent me by M. Grouvelle, of Paris, is extremely like *L. Dargelasi*, but it is a little more elongate and relatively narrower, with the punctures of the elytral striæ not so coarse, the 2nd and 3rd interstices distinctly uniseriate-punctate, and the sutural stria shallower; it is quite unrecognisable from the description. *L. (Elmis) rugosus*, Babington (the specific name of which appears to have been taken from the rugose appearance of the elytra, and not of that of the thorax), a species noted from Britain only in the last European Catalogue, has been resuscitated by Kuwert, though he does not pretend to identify it. Stephens describes the species, but I can find no trace of an insect thus labelled in his collection. The name has long since been dropped by British Coleopterists, and no useful purpose can be served by reviving it.

M. Grouvelle has been kind enough to examine Mr. Edwards' insects; he considers them to belong to two species only, *L. Dargelasi* and *L. troglodytes*, and states that he has often seen similar specimens. It may be here remarked that the *Limnii*, like other *Elmidæ*, require thoroughly cleaning from their usual earthy incrustation before the sculpture can be properly seen. The excellent photographs of these insects taken by Mr. Edwards, which cannot be conveniently reproduced here, show that many differential characters, especially of relative measurements, and even of sculpture, can be readily made clear by this method, and more easily understood than by the most lengthy description.

Horsell, Woking :

March 4th, 1901.

THE LIFE-HISTORY OF WARBLE-FLIES.

BY ERNEST E. AUSTEN.

Accurate observations on the oviposition and life-history of the British Cattle Warble-Flies, *Hypoderma lineatum*, Vill., and *H. bovis*, Deg., are urgently needed.

Since it was shown more than half a century ago by Braey Clark* that the ovipositor of *Hypoderma bovis*† is incapable of piercing

* Trans. Linn. Soc., vol. xix, p. 83 (1845).

† That the larva of *H. lineatum* is likewise parasitic in cattle was not definitely known until the publication in 1890 of Prof. Brauer's paper :—" Ueber die Feststellung des Wohnthieres der *Hypoderma lineata*, Villers," &c. (Verh. z.-b. Ges. Wien, Bd., xl, 1890, pp. 509-515). Brauer showed that larvae of both species may occur in the same animal.

the skin of cattle, a statement supported by further observations in Prof. Brauer's well-known "Monographie der *Æstriden*" (1863), it was generally supposed that the eggs are deposited on the skin of the back and loins, or else attached to hairs in the same region; and that the young larvæ, after being hatched by the warmth of the animal's body, bore their way through the skin, the passage in which afterwards closes up. It was known that for some months the larvæ lie dormant, or travel about in the tissues of the host, until they eventually come to rest beneath the skin of the back, forming round them the well-known subcutaneous cysts called "warbles." Each warble communicates with the exterior by a hole in the skin, through which the larva breathes, and by means of which it escapes from the host when mature, in order to pupate in the ground. These holes are permanent, remaining when the hide is dressed, and since a badly warbled animal may harbour perhaps a hundred larvæ or more, the finished hide presents the appearance of having been riddled with shot. Warble-flies are, therefore, the cause of much loss to the leather industry every year. The present paper, however, is concerned with the larvæ themselves rather than with their economic importance.

In the case of *Hypoderma lineatum*, at any rate, recent investigations have shown that the larvæ enter the body of the host in a manner different from that indicated above.

In 1890, Curtice recorded the fact (*Insect Life*, vol. ii, 1890, pp. 207, 208) that in the United States he had found in cattle, during December, 1889, and January, 1890, larvæ of what he termed *Hypoderma bovis* (really *H. lineatum*) in apparently peculiar situations. These larvæ, which were "from 10—15 mm. long., and 1·5 mm. thick," were situated—

"(1) in the œsophageal walls, (2) one specimen under the pleura near the eleventh rib, (3) in the subcutaneous tissue of the back, and (4) in subcutaneous tumors which opened by an orifice upon the external skin."

On the basis of these observations Curtice suggested that:—

"It is possible that the eggs or larvæ are licked by the cattle from the backs; that the larvæ make their way into the œsophageal walls, and from thence, during the proper season, through the back in the neighbourhood of the eleventh rib to the skin."

The question was further investigated in the case of *Hypoderma lineatum* in the United States by Prof. Riley (*Insect Life*, vol. iv, 1892, pp. 302—317), who fully confirmed Dr. Curtice's views. Prof. Riley's "Conclusions" (*op. cit.*, p. 316), are of sufficient interest to be quoted at length. They are as follows:—

"The American Ox Warble, in every case so far observed, is the larva of *Hypoderma lineata*.* This species has come to be known, especially through the south and south-west, as the Heel Fly, on account of the habit which the female has of frequenting the legs of animals for purposes of oviposition. While the eggs are laid on other parts of the body that may be reached by the tongue, the species shows quite a strong tendency to select the flanks and legs around the heels, and the habit, almost everywhere observed, that cattle have of seeking to protect their legs by running into water during the bot-fly season finds its explanation in these facts. The eggs are attached firmly, by a strong cleft, in rows of from five to ten or more, to the hairs. (For figures of the eggs, see *op. cit.*, p. 307, fig. 44).

"When the cattle lick themselves, the young larvæ are taken into the mouth, as, under pressure and moisture, the egg readily splits at its anterior end, and releases the young larva, which is already well developed when the egg is laid. Doubtless quite frequently the eggs with the contained larvæ are taken with the hair in this licking, but in either event the larva in leaving the egg is armed with many minute spines, which permit it to adhere to and to penetrate the walls of the œsophagus. Here it soon moults and takes on the second or smooth stage, which for eight or nine months wanders slowly in the tissues of its host. The slow movement and the little nourishment taken reduce the inflammation and irritation to a minimum; in fact, the most remarkable thing in the life-history of this larva is the long period of latency, and the slight development that takes place during the summer and autumn months. During the late winter the larva reaches a point beneath the skin in the region of the back, and penetrates the skin, anal end first, as Dr. Curtice believes, and as seems most probable. Here it moults a second time, and re-assumes its spinous character, producing more or less inflammation and developing rapidly, with its enlarged spiracles fitted for more perfect breathing. The third moult soon follows, and we get the more strongly spined grub, with its still larger spiracles, which lives in the swellings or sacs so well known to stockmen. It finally works its way out, drops to the ground, which it enters, and where it contracts, hardens, and darkens in colour. In a few weeks afterward the perfect fly issues.

"That such is the normal and invariable life-history of *Hypoderma lineata* I think there can no longer be a doubt, and the burden of proof of any departure from it will rest hereafter with those who contend otherwise."

The early stages of the larva of *Hypoderma bovis* have recently been studied by Koorevaar in Amsterdam ("Tijdschrift der Nederlandsche Dierkundige Vereeniging," 2de serie, deel v (1898), pp. 29—34:—*cf.* translation by the present writer in *Ann. Mag. Nat. Hist.*, ser. 7, vol. 4 (1899), pp. 69—73), with a view to discovering whether the *Hypoderma* larvæ, which are frequently met with within the spinal canal of cattle, lying in the fat surrounding the spinal cord, as well as in the wall of the œsophagus, are really the same as those often found in the same animal in warbles beneath the skin. From the results of his experiments with living *Hypoderma* larvæ

* In connection with this statement it is worthy of note that, from evidence afforded by the series of specimens in the British Museum (Natural History), *H. lineatum* is far more common than *H. bovis* in England also.

removed from the spinal canal of cattle and inserted beneath the skin of a dog and of a goat, while other similar larvæ were introduced into the œsophagus of two other dogs and of a rabbit, Koorevaar came to the conclusion that—

“The young larvæ of *Hypoderma bovis* at first pass beneath the skin, and from thence betake themselves to the spinal canal and other places, to return later into the subcutis, and there undergo further development under the well-known conditions” (Ann. Mag., *loc. cit.*, p. 73).

It follows that if we accept the conclusions of both Koorevaar and Riley, there is a striking difference between the life-histories of *Hypoderma bovis* and *H. lineatum*, in that, while the larvæ of both ultimately form warbles beneath the skin of cattle, in the earliest stage the larvæ of the former gain access to the host by boring their way through the skin (as was formerly believed to be the case in all species of *Hypoderma*), while those of the latter do so *viâ* the mouth and the wall of the œsophagus. Koorevaar's opinion, however, was due to finding that while the larvæ inserted beneath the skin “wandered about into various places agreeing with those in which they are found in cattle,” the introduction of larvæ *per os* produced a negative result, in that all trace of the larvæ disappeared. In connection with this it may be pointed out, however, that since, as is shown in the extract from Riley quoted above, the just-hatched larva of *Hypoderma lineatum* is armed with spines, which enable it to pierce the œsophageal wall, while in the subsequent stage in which it travels about in the tissues of its host its integument is smooth, it may well be that the spinal larva of *H. bovis* is unable to make its way through the tough wall of the œsophagus, although it may have done so in the previous stage. It is scarcely likely that between the life-histories of two closely allied species such a striking difference should exist as that indicated above, but, as has been shown, the conclusions of Koorevaar and Riley are not necessarily antagonistic. Enough has been said, however, to enforce the statement at the commencement of this paper, and to show that any student of natural history, who happens to live in a district in which either or both of our British Cattle Warble-Flies occur, might do really useful work by taking the hint. It is scarcely necessary to remark that should *Hypoderma bovis* be found, like *H. lineatum*, to be in the habit of depositing its eggs on the hair round the pasterns, there would, in the case of this species also, be strong presumptive evidence in favour of Prof. Riley's view.

British Museum (Natural History),
London, S.W. :
February 20th, 1901.

HYMENOPTEROLOGICAL NOTES.

BY THE REV. F. D. MORICE, M.A., F.E.S.

1. *Formica fusca* ♂♂ and ♀♀ in a nest of *F. sanguinea*.—In the past summer I have several times visited a large and somewhat peculiar nest of *Formica sanguinea*, L., near Weybridge Station. The ants have taken advantage of a large square of coarse sacking, which some one has thrown down on the heath a few yards off the road. Under this they live, tunnelling into the whole of the ground which it covers, but with no roof to their nest except the sacking itself. Throughout June and July the whole nest was swarming with *sanguinea* workers, among whom might be seen comparatively a very small number of their usual “slaves” or “associates,” the ♂♂ of *F. fusca*, Latr.

On July 13th I found, on uncovering the nest, a number of winged forms, which I expected would all belong to *sanguinea*, as Huber asserts more than once that winged forms of *fusca* do not occur in the “fourmilières mixtes,” and Darwin makes the same statement in “Origin of Species.” However, though a large proportion of them were ♂♂ of *sanguinea*, four ♂♂ and two ♀♀ proved to belong to the other species. *Sanguinea* ♀ did not appear at all, and on my next visit (after an absence of some weeks) all the winged forms had disappeared from the nest, though the workers were as busy and numerous as ever.

I have looked through a good many accounts of the habits of *sanguinea* (in Emery, André, Farren White, &c.) without finding any clear confirmation or contradiction of Huber’s view. He states it very positively, and even declares that the *sanguinea* so times its raids on *fusca* as to avoid any risk of carrying home ♂ or ♀ pupæ of the slave species. But in the present case both ♂♂ and ♀♀ of *fusca* had undoubtedly been reared along with those of *sanguinea*.

2. *Melecta luctuosa*, Scop., and *armata*, Pz.—It is generally said (e.g., by Smith) that these species are respectively parasitic on *Anthophora retusa*, L., and *pilipes*, F., only. I believe it is true that *luctuosa* does not occur with *pilipes*, but I am rather strongly of opinion that *armata* infests both species. *Retusa* in this neighbourhood is almost as common as *pilipes*, but appears somewhat later—the two periods of appearance, however, overlapping considerably. The burrows of the two species occur in the same banks and appear to be precisely similar. About these banks *M. armata* simply swarms all through the spring, and I have often found it flying there amid crowds of *retusa*

♀, when *pilipes* apparently was over. *Luctuosa* has been taken by Mr. Saunders at Chobham, but I have never succeeded in finding it myself anywhere in this neighbourhood. Whenever I have looked for it in *retusa* colonies I have only found *armata*.

At Swanage this spring I saw a few specimens of *luctuosa* which were certainly associating with *retusa*; but even there *armata* occurred also, and in much greater abundance.

M. luctuosa is a common species on the Continent, but in England it seems to be decidedly rare, even in localities where *retusa* is plentiful. I know of no district in which *pilipes* and *armata* are not to be found *ad libitum*.

3. *Eucera longicornis*, L.—It is perhaps worth noticing that our species—or, at least, all specimens that I have taken or seen of it—has a coarsely or rugosely punctured mesonotum, and is, therefore, not the species considered abroad (*cf.* Friese, *Ap. Europ.*) to be the true "*longicornis*" of L. Our species is that described by Friese as "*difficilis*, Pérez." Unluckily there is nothing whatever in the Linnean description to show which of the two species he had before him. I have taken both in the Alps. *A priori* one would rather expect that our species, which is also, as Herr Alfken has told me, the only form he takes in North Germany (near Bremen) would be that familiar to Linné. But I am not prepared to argue the question, and would merely point out that our *longicornis* is not that of "*Apidæ Europææ*, Friese."

4. *Ellampus cæruleus*, Dhb. (?).—I took on June 27th last, in a lane near Chobham, a very queer little *Chrysid*, which, I think, must be a variety of this species—probably an exceedingly dark specimen of the variety *virens*, Mocs. Its colour is almost entirely inky-black, with metallic green tints only on the sides of the abdomen and the legs. *Æneus*, Pz., which is not rare near Chobham, sometimes goes quite black, and I should refer my insect to that species, but that there are distinct punctures at the base of the mesonotum. These punctures, it is true, are hardly so strong as in normal specimens of *cæruleus*; still, they exist, and there is no trace of anything like them in any of my specimens of *æneus*.

E. cæruleus var. *virens* has occurred in England. I have a specimen found by Mr. Watkins in an old cherry tree.

5. *Odynerus lævipēs*, Shuck.—Some years ago I picked up a dried bramble stem from a heap beside the road from Woking to Guildford, from which next summer I reared a ♂ and a ♀ of this apparently rare species. Happening last winter to pass the same spot I again

saw a heap of bramble stems lying there, and found that several of them contained the cylindrical mud cells of the same insect. On the 19th and 20th of May six fine specimens of the wasp emerged—all females. As several cells still remained closed I waited for a week or two, and then cautiously opened and examined them. They contained four dead males, all of which seemed to have developed up to the same point—they had coloured properly, but the wings had never expanded. As all the cells had been kept together in glass tubes, I do not know why the fate of the occupants was different, and it certainly seems curious that all the males should have perished and all the females emerged. It is odd, also, that I should in two different winters have found these cells in the same spot and under the same circumstances, while I have never been able to find them elsewhere, though I must have examined hundreds of pierced bramble-stems in this neighbourhood in hopes of discovering them. I have only once found a *levipes* “in the open,” and that was a ♂, visiting the flowers of *Scrophularia* in a ditch near Chobham.

6. *Athalia spinarum*, F.—The oft-quoted observations of Newport have made this one of the most familiar names among British sawflies. But whatever may once have been the case, it certainly now does not seem to occur to any alarming extent in this country. In a good many collections of sawflies sent to me for determination I have hardly ever discovered *spinarum*, and then only quite old specimens. Year after year I have looked for it myself in turnip fields and on umbellifers, but I never found it in England till this autumn, when at last I secured a few specimens on, I believe, *Angelica*. It is common enough abroad (e.g., South France and Tirol), but even there I have never seen it abounding to such an extent as to threaten any considerable damage to the agriculturists. Perhaps, as Mr. Cameron has suggested, the system of rotating crops is unfavourable to its excessive increase. It would be interesting to know whether there is still any part of England in which it is common enough to be really mischievous.

Brunswick, Woking: 1900.

Ceuthorrhynchidius mixtus, Muls. and Rey, at Porlock.—I am glad to be able to supplement Mr. Claude Morley's records of this species as a British insect. I took a single specimen of it by evening sweeping on July 4th, 1900, at Porlock, in Somersetshire. It occurred in a damp hollow in the dense wood along the sides of the upper part of “Horner Water.” Unfortunately I did not recognise the species at the time, or I should certainly have tried for more. Mr. G. C. Champion kindly identified the specimen for me.—W. H. BENNETT, 15, Wellington Place, Hastings: February 25th, 1901.

The late Mr. Lennon's collection of British Coleoptera.—It may be of interest to put on record that this collection has now become public property; it has been acquired, by purchase, by the Museum of Science and Art in Edinburgh. I had the pleasure of looking through the collection when in Edinburgh on December 27th last; it is in good condition, and very rich in specimens collected in the counties of the south-west district of Scotland (the Solway District); I believe there are over 1200 species in the collection from this district alone.—T. HUDSON BEARE, King's Road, Richmond: *January 19th, 1901.*

Steni gliding on the surface of water.—Some of the species of *Steni* frequenting the edges of pools, exercise under certain circumstances, a power which they possess of gliding swiftly over the surface of the water. Though I have watched this movement attentively for hundreds of times, I have never been able to discover by what means it was effected. With a view to induce others to investigate the matter I will point out under what conditions one may expect to secure an exhibition of this curious movement. Going during spring to any pond, fringed as most ponds are in spring with the withered herbage of the previous year's growth, one has but to trample amongst this to see numbers of *Steni* struggling on the water. They soon right themselves and begin to crawl towards shore, very slowly, being unable to get secure foothold on the water; but among the number a few will usually be seen to start, rather slowly at first, and then with steadily increasing rapidity to glide, describing a wide curve which, narrowing towards the end, makes a track representing a figure of six. The distance traversed varies from two or three feet to as many yards. Before coming to rest the insect generally revolves on its own axis several times; no movement of the legs is perceptible, and the water left behind is clear and unruffled, like that produced by a light object impelled by a breeze.

On one occasion I took some home and floated them in a basin of water; they only crawled until some hot water was poured in, then most of them made circles of a few inches diameter, spun round, and died, but their movements were obscured by the vapour.—A. PIFFARD, Felden, Boxmoor, Herts: *March 9th, 1901.*

Lophopteryx carmelita, Exp., in the New Forest.—Since I do not remember having seen any notice of the occurrence of the rare *Lophopteryx carmelita* in Hampshire, I should like to put on record the fact, in the hope that it may be "better late than never," that a specimen in perfect condition was taken at rest on a birch trunk, near Brockenhurst, by Mr. Charles Gulliver in April, 1891, and was added to my collection shortly afterwards. The individual, which is a female, expands 45 mm., and is larger than any of the others in my series, all of which have been bred from ova laid by moths reared in confinement. When so reared, generation after generation, without the introduction of any "fresh blood," the insect gradually decreases in size, and would, in a few years' time, doubtless lose altogether the power of perpetuating its race.—EUSTACE R. BANKES, Norden, Corfe Castle: *February 27th, 1901.*

Dark aberration of Eupithecia nanata, at Shirley, Surrey.—Among some *Lepidoptera* lately received for identification from Mr. A. H. Shepherd, I was much interested to find a strikingly dark aberration of *Eupithecia nanata*, taken by him

on Shirley Heath, near Croydon, on May 5th, 1900. The specimen, which is a male, has both fore- and hind-wings dark smoke-grey, without any of the usual white markings, the positions of the more important of these being merely indicated in a shade of smoke-grey rather paler than the ground colour. The black discoidal spot on the fore-wings is present, and the blackish lines that bound the central fascia on either side are visible, especially towards the costa. The variety *obscurata*, Stgr., described by Staudinger in Cat. Lep. Eur., p. 195, No. 2773 (1871), as "*Obscurior, alis fere non albo-strigatis*," evidently approached this form, but must be rather less dark, or he would have omitted the word "*fere*." Shirley Heath is one of the last places where one would have expected to meet with so dark a form, and indeed, it appears to be very scarce there, for although Mr. Shepherd has been taking the species in that same spot for many years past, he never remembers having seen a similar specimen. It would be interesting to learn in what other British localities it has been noticed, and whether in any of them it occurs regularly, or outnumbers the typical form. *E. nanata* is abundant on our Dorsetshire and Hampshire heaths, but I have never seen or heard of the occurrence of such an aberration in either county.—ID.: *March 7th*, 1901.

Vanessa Antiopa at Woking.—A friend of mine secured a specimen of the above in this neighbourhood last August; it was in rather bad condition, but I thought it might be worth while to record its occurrence.—EDWARD SAUNDERS, St. Ann's, Woking: *March 12th*, 1901.

Note on the weight of pupæ of Acherontia Atropos.—It is perhaps of interest, for comparison in future years, to put on record the average weights of the pupæ of *A. Atropos* which are given below. The greater weight of the October pupæ should be noticed.

	Weight in Grammes.		
	Greatest.	Least.	Mean.
14 collected in September	11·945	7·706	9·004
7 " " October	12·515	8·387	10·340
Mean weight of 21			9·472

—HERBERT FORTESCUE FRYER, The Priory, Chatteris: *February 23rd*, 1901.

[The *age* and *sex* of the pupæ should have been stated, for it is well known that these greatly influence the weight. On this point see a paper by Prof. Meldola in *Annals and Mag. Nat. Hist.*, ser. 4, vol. xii, 1873.—EDS.]

Native method of catching Cicadæ in Lower Siam.—We take the following from the "Report on Cambridge Exploring Expedition to Lower Siam, drawn up by W. W. Skcat," published in the Report of the Brit. Assoe. Adv. Sci., 1900, p. 394:—"On this journey some strange articles of diet were served up to us, among them being red ants, toads, bee grubs, and a species of *Cicada*. The manner in which the latter are caught is peculiar. Two or three natives gather together at night round a brightly burning wood fire, one of them holding a lighted torch. The others clap their hands at regular intervals, and the *Cicadæ* attracted by the noise and guided by the light fly down and settle upon the people as they stand by the fire."—EDS.

*An unrecorded recent native example of *Æschna isosceles*, Müll. (rufescens, v. d. L.).*—It is no doubt a fact that many years ago this fine Dragon-fly was, if local, not uncommon in East Anglia, especially Norfolk. Recent records have been very few—by recent I mean within the last 20 years or thereabouts, and mainly from the neighbourhood of Norwich and Ranworth. Last autumn Mr. J. Edwards gave me a fine ♂ labelled “Norfolk, Thouless,” but without date or further locality. That it is quite recent there can be no doubt, and Mr. Thouless collects largely in the vicinity of Norwich. My own opinion is that the insect is probably local, but not uncommon where it occurs, and only wants looking for: now that more attention is being paid to these insects it should not long remain a rarity. It is comparatively early, and search should be commenced not later than the beginning of June (but it may last a considerable time). It could only be mistaken for *Æ. grandis*, but is smaller, the body brighter red, and the wings want the brownish-olive tinge so conspicuous in *grandis*, the latter moreover is later (these apart from structural differences). I hope the coming summer will not pass without a systematic search being made for the species, and have little doubt that if such search be made it will be rewarded with success. I possess five native examples, four of which are recent (three from Mr. Barrett), the other probably dating from the first half of the last century, obtained at the sale of the late T. C. Heysham’s collection in 1868.—R. McLACHLAN, Lewisham, London: *March 10th*, 1901.

Review.

THE LARVÆ OF THE BRITISH BUTTERFLIES AND MOTHS: by (the late) WILLIAM BUCKLER, edited by GEO. T. PORRITT, F.L.S. Vol. ix, Pyrales, Crambites, Tortrices, Pterophori, &c. 8vo, pp. 419, Plates cxlviii—clxiv (concluding the work). London: Ray Society. 1901.

It is now just about 17 years since the writer of the present notice was deputed by the Ray Society to proceed to Emsworth and claim from the representative of the late Mr. Buckler his original drawings* and notes, and he remembers that it was with a distinct sense of relief that he deposited his charge the same evening at the house of his neighbour, the Rev. Prof. Wiltshire, Secretary of the Society. He did not then anticipate that the undertaking of publishing these figures and notes would not be completed till the opening months of the next century. But “all’s well that ends well;” and although there has been vexatious delay (for which neither the Society nor the editors were to blame), the fact that the work has run to nine volumes renders it a matter for deep congratulation, amongst those few who know the difficulties that have been encountered, that it is at last concluded. Those who know the marvellous delicacy of touch imparted to his drawings by the late Mr. Buckler, a delicacy in which we venture to think he stood alone in this or any other country, will say that on the whole the reproductions have been effective, and more especially in the later vols. Those who have studied his minute descriptions of habits, &c., will allow that in this respect he might justly have been styled “the modern Réaumur.” That the descriptions of larvæ are not quite on modern lines from a scientific point of view is no doubt true: Mr. Buckler was an untutored student of, and delineator after, Nature, and moreover, in his day most of the

* We have reason to believe that Mr. Buckler’s original drawings will soon be in the market, they having served the purpose for which the Ray Society acquired them.—Eds.

points in larval structure now considered of so much importance, had not been thought of. A monumental work has come to an end, and it will be useful for all time.

Vol. ix far exceeds in bulk any of its predecessors; in some respects it is perhaps of more scientific value than any of them. The number of plates is perhaps not greater, but it so happens it was found that the available text was much in excess of that for any former vol. The number of species described and figured for the *Pyrales*, *Crambites* and *Pterophori* is great, and in many cases the text, especially that for the water-moths, is full and fascinating, owing to its marvellous detail and accuracy, and here, almost for the first time, a comparison is drawn with the writings of the author's great prototype, Réaumur. The extension of the text is also partly due to Mr. Porritt having judiciously, during his editorship, introduced descriptions by other authors when none were extant by Messrs. Buckler and Hellins, or used them as supplementary when such were extant. This vol. is certainly a marvellous guinea's worth. Mr. Bignell, as usual, has furnished a list of parasites.

And now a few statistics as to the work as a whole, taken from the General Index included in this vol. We take it that of not far short of 900 species are the larvæ figured, the number of figures for each species varying from one to a dozen, and often with the method of work on the food-plant. For a good number of species there are figures but no descriptions, and for a few, descriptions but no figures. The nomenclature employed is not always that in force at the present day, but this can deceive no one, and can only offend those who think names of more importance than the insects that bear them.

The Ray Society is to be congratulated on its efforts to finish the work having been so ably seconded. There is a melancholy side to this happy consummation. Would that Mr. Stainton had lived to see the end of an undertaking that owed its existence to his initial suggestion!—R. McL.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *December 19th, 1900.*—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

Mr. A. D. Dumm, Oxford Road, Moseley, and Mr. W. H. Flint, Farm Road, Linthurst, Sparkbrook, were elected Members.

Mr. R. C. Bradley exhibited *Sirex juvenis* taken at Bournemouth in August last, and *S. gigas* taken at West Runton, Norfolk, also in August. Mr. C. J. Wainwright, a number of *Aculeate Hymenoptera*, taken at West Runton, Norfolk, in July and August last, including *Nyssa dimidiatus*, *Astata boops*, *Tachyles pectinipes*, *Mellinus sabulosus*, *Tiphia minuta*, *Andrena Cetti*, *A. bimaculata*, *Nomada obtusifrons*, and many others; also three ♀♀ of *Odynerus gracilis* from Ran Dan Woods, a species which had not previously occurred near Birmingham. Mr. F. A. Jackson, a number of *Coleoptera*, including *Chlœnius vestitus*, taken at Bewdley on October 19th last. Mr. G. T. Bethune-Baker, a number of Palearctic *Epinephile* and *Pararge*.

January 21st, 1901.—The President in the Chair.

Drs. T. H. Wilkins, of Small Heath Dispensary, and W. Wright, of Mason's University College, were elected Members.

Mr. R. C. Bradley showed a number of *Diptera*: a series of *Pelecocera tri-*

cineta from Bournemouth, where he had taken it fairly commonly this year near to the original locality in greater numbers than any one had taken it before; also *Anthrax fenestrata* from Bournemouth; *A. paniscus* from West Runton, Norfolk; and *A. flava*? from Bournemouth; all three species taken by himself, though he had never met with a specimen of the genus before; also all three species of *Didea*, *alneti* from Sutton and Wyre Forest, *intermedia* from Sutton, and *fasciata* from Sutton, Wyre Forest, and Poole. Mr. Aug. D. Imms, *Sinodendron cylindricum* from an old oak at Moseley. Mr. C. J. Wainwright, a series of the rare Dipteron, *Stratiomys Chameleon* from W. Runton, Norfolk, taken last July and August. Mr. G. T. Bethune-Baker, a drawer full of *Epinephele Janira* and its allies.—COLBRAN J. WAINWRIGHT, *Hon. Secretary*.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY. — THE ANNUAL MEETING was held on Monday, January 14th, in the new room taken by the Society at the Royal Institution, Colquitt Street, Liverpool. The Vice-President, Mr. E. J. BURGESS SOPP, occupied the Chair.

The Secretary read a report on the work of the year 1900. The Treasurer read his report, which showed a credit balance. Mr. Webster proposed, and Mr. Harrison seconded, that the report and balance sheet be printed. Rule 4 was amended to suit the new conditions. Mr. Pierce mentioned incidentally that the Library had been brought over to the new premises, and would be lodged in an adjoining room as soon as space could be found for it.

The election of Officers for 1901 was then proceeded with, and resulted as follows:—President, S. J. Capper, F.E.S.; Vice-Presidents, R. Wilding and Rev. R. Freeman, M.A.; Secretaries, F. N. Pierce and Fredk. Birch; Treasurer, Dr. J. Cotton, F.E.S.; Librarian, F. C. Thompson; Council: A. Tippins, B. H. Crabtree, F.E.S., R. Tait, E. J. Burgess Sopp, F.E.S., and Dr. H. Dobie.

The outgoing Vice-President, Mr. E. J. Burgess Sopp, then gave a most interesting and instructive address, which will be printed for putting into the report. The Rev. R. Freeman proposed a hearty vote of thanks to Mr. Sopp; this was seconded by Mr. Wilding, and carried unanimously. Dr. Cotton proposed, and the Members agreed, that the Secretary should write to the President expressing their regret at this his first absence from the Society's Annual Meeting for so many years.

February 11th, 1901.—Mr. R. WILDING in the Chair.

It was decided by a vote that the next Meeting should be held at St. Helen's.

The Joint Secretary, Mr. Frederick Birch, then read a paper entitled, "Our Raid into the Highlands," in which he described what he and his companions, Messrs. J. and H. Tayler, did and saw at Rannoch (North-West Perthshire) in the summer of 1900. On June 20th, they entrained for Rannoch. Amongst the rare species of *Coleoptera* taken may be mentioned *Saperda scalaris*, *Eros Aurora*, and *Trichius fasciatus*. Of *Lepidoptera* the best were, *Dasydia obfusca* and *Psodos trepidaria*. Mr. Pierce proposed a vote of thanks to Mr. Birch for his paper, which was carried unanimously. The Rev. C. J. Buckmaster, of Wigan, gave some interesting reminiscences of the Rannoch district, which extended over a period of thirty years. The following exhibits were made:—*Noctua subrosea*, by Mr. Pierce; Devonshire and Local *Lepidoptera*, by Mr. Tonkin; Scotch *Coleoptera* and *Lepidoptera*, by Mr. Birch; *Saturnia pavonia-major*, taken in the South of France by

Mr. Gardner; *Ephestia Kühniella*, feeding on rice, by Mr. Holt; and two species of the genus *Stillicus* new to the local list, by Mr. Wilding.—FREDERICK BIRCH, *Hon. Joint Secretary*.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *January 10th*, 1901.—Mr. W. J. LUCAS, B.A., F.E.S., President, in the Chair.

Mr. R. Adkin exhibited a specimen of *Hepialus sylvinus*, which he took on the Downs near Birling Gap, Sussex, September 4th, while drying its wings on a plant of vipers bugloss (*Echium vulgare*), together with the pupa skin which he found protruding from the root of the same plant. Dr. Chapman, a nice series of *Argynnis Thore*, an Alpine species, from Pontresina, 6000 feet. Mr. Hy. J. Turner, specimens of *Locusta viridissima* from Ventnor, where it was common in 1899. Mr. Montgomery, long bred series of *Colias Edusa* and var. *Helice*, with intermediate forms and contributed notes. Mr. F. Noad Clarke, with the lantern, a large number of Photomicrographs of Lepidopterous ova, and contributed notes. The whole of the photographs were skilfully produced, and were all to one scale of size.

January 10th, 1901.—ANNUAL GENERAL MEETING.—The President in the Chair.

The Report of the Council, showing the work of the Society during the year, was read, and the Balance Sheet was adopted.

The following list of Officers and Council were declared elected for the ensuing year:—President, H. S. Fremlin, M.R.C.S., F.E.S.; Vice-Presidents, F. Noad Clark and W. J. Lucas, B.A., F.E.S.; Treasurer, T. W. Hall, F.E.S.; Librarian, H. S. Sauzé; Curator, W. West (Greenwich); Hon. Secretaries, Stanley Edwards, F.L.S., F.E.S., and Hy. J. Turner, F.E.S.; Council: R. Adkin, F.E.S., W. J. Ashdown, T. A. Chapman, M.D., F.Z.S., A. Harrison, F.L.S., F.E.S., A. M. Montgomery, E. Step, F.L.S., and J. W. Tutt, F.E.S.

The President read his Address, and votes of thanks to the retiring Officers and Council were passed.

A proposal was made to close the rooms during the summer holiday season, but it was not passed by the Meeting.

February 14th, 1901.—Mr. H. S. FREMLIN, M.R.C.S., F.E.S., President, in the Chair.

Mr. Garrett, of Brewer's Green, was elected a Member.

Mr. Colthrup exhibited a drawing of a dashed and radiated under-side var. of *Polyommatus Icarus*, taken by Mr. Hill, of Folkestone. Mr. Wyandotte, a large number of specimens of amber, having insects embedded in them. Mr. West (Streatham), read a paper, "Fossil Insects: with special reference to insects in amber;" he afterwards showed a very large number of photographic lantern slides of insects in amber.—HY. J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: *February 6th*, 1901.—The Rev. Canon FOWLER, M.A., F.L.S., President, in the Chair.

The President moved that an address of condolence and congratulation be presented by the Society to His Majesty King Edward VII on his accession to the throne, and remarked that in 1833, when the Society was founded, the late Queen with her mother, the Duchess of Kent, was the first to sign the book subscribed by Members and Fellows upon admission to the Society. The motion was seconded by Col. Swinhoe, and carried unanimously.

Mr. B. G. Nevinson, of 3, Tedworth Square, Chelsea, was elected a Fellow of the Society.

The President announced that he had appointed as Vice-Presidents, Mr. C. G. Barrett, Mr. E. Saunders, and Mr. G. H. Verrall.

The President exhibited a specimen of *Colias Edusa*, var. *Helice*, with the margins of the wings entirely dark, as in the male; also a variety of *Carterocephalus Palemon*, with the hind-wings dark, save for one conspicuous orange spot. Dr. T. A. Chapman, a large series of *Endrosæ* collected during the last few years by himself, Mr. A. H. Jones, and especially by Mr. Tutt; *E. roscida*, which is a very distinct dwarf form, and from frequenting marshy flats, must live on lichens growing in such localities, and not on stones as the others do; *E. irrorella*, which should be the rarest species of the Alps, judging by the comparatively few specimens met with; *E. aurita*, in very great variety, including a good many specimens that are called *Kuhlweini*, var. *alpestris*, none, however, reaching the type of *Kuhlweini*, but sufficient to show with something like certainty that *Kuhlweini* is simply an extreme form of *aurita*: *E. aurita* and *E. irrorella* are very near together, no point in their anatomy being absolutely distinctive, while the genitalia are practically identical; *E. irrorella* always looks much slighter, being lighter scaled, and the hairs short and smooth. It always has a yellow patch on the mesothorax. The venation is also distinctive, yet individuals of each species approach each other completely in each of the distinctive items of the venation, but never in all of them, so far as examination of a number of specimens goes. Except *irrorella* from England, Finmark, and the Tyrol, and a few *aurita* from the Tyrol, all were from the Western Alps of Switzerland, Italy, and France. Examples from each locality when sufficiently numerous usually have a special facies. Some, as all those from Arolla, radiate; those from Bourg St. Maurice are without radiate forms, and so on. Some are more yellow; others deeper orange; some more mixed. Elevation tends to produce radiation, but no other general conclusion as to the effect of height, latitude, or longitude, seems fully justified by the specimens. Mr. C. G. Barrett, for Mr. G. O. Day, of Knutsford, a black variety of *Aplecta nebulosa*, Tr., with white cilia, and an asymmetrical ♀ var. of *Fidonia atomaria*, Linn. Mr. M. Jacoby, an unknown species of *Halticidæ*. Mrs. Nicholl, a collection of *Rhopalocera* from the Lebanon district of Syria; and Mr. H. J. Elwes, on her behalf, read a paper explaining and illustrating the several species included. Among other species, Mr. Elwes drew especial attention to *Thecla myrtale*, which, since it was described by Klug in 1832, has remained one of the least known members of the palaearctic fauna. No examples it appears had been taken in the interval until Mrs. Nicholl found it on the high mountains not uncommon in May and June. *Y. Asterope* was also taken commonly on the coast, the species being the sole representative of its family between Syria and Manchuria. The *Nymphalidæ* also showed a great range of variation. Sir John Llewelyn made some remarks on the character of the country through which Mrs. Nicholl had travelled. The following papers were communicated:—“A revision of the genus *Astathes*, Newm., and allied genera of Longicorn *Coleoptera*,” by C. J. Gahan, M.A.; and “A Preliminary Catalogue of the *Lepidoptera-Heterocera* of Trinidad,” by W. J. Kaye.—H. ROWLAND BROWN, M.A., and H. GOSS, F.L.S., *Hon. Secretaries*.

THE GENUS *HETEROMYZA*, FALLÉN (*HELOMYZIDÆ*).

BY J. E. COLLIN, F.E.S.

Among some insects recently sent to me by Mr. J. W. Yerbury was a specimen taken by Mr. Grimshaw, of the Edinburgh Museum, at Spring Wood, Bradford, Yorkshire, on August 5th 1893, and labelled by him *Thelida oculata*, Fln.; this upon examination proved to be the true *Heteromyza* (*Thelida*) *oculata* of Fallén and Zetterstedt, and induced me to study the other species of the genus. The result of my investigations will be found in the following pages.

The genus *Heteromyza* was established by Fallén in 1820, for the reception of two species, *H. oculata* and *H. buccata*; Meigen, Macquart, Zetterstedt, and Desvoidy, all added to the number of species, Desvoidy re-describing the genus under the name *Thelida*, but it was very far from being a natural genus until Loew, in 1859, dealt with it in his paper on the European *Helomyzidæ*; he retained Fallén's *H. oculata* as the type, because it was, from the family and generic descriptions, evidently the species Fallén had in his mind when he established the genus; the other described species that Loew considered congeneric with *H. oculata* were *H. atricornis* of Meigen, *H. cinerella* of Macquart, and *H. scutellata* of Macquart, but he considered Macquart's two species as only varieties; he had not noticed the fact of *Anthomyza rotundicornis*, Zetterstedt, belonging to the genus, and did not refer to Desvoidy's genus and species at all. Schiner and Rondani, of subsequent writers, were both apparently ignorant of Loew's work, and used Desvoidy's name *Thelida* for the present genus, while they retained the name *Heteromyza* for the species upon which Loew had established the genus *Tephrochlamys*. Macquart was the first to point out that *Thelida* of Desvoidy was a synonym of *Heteromyza*, Fln., and it is an absolute synonym of *Heteromyza* as at present restricted.

The only addition I make to Loew's definition of the genus is to bring in characters that will include his *Tephrochlamys magnicornis* (the female of *H. oculata*, Fln.); Loew himself considered it possible that his *T. magnicornis* might prove to be only the female of *H. oculata*, a species which he knew only from descriptions. The genus, as I recognise it, may be known by the following characters, those given in italics being sufficient to separate it from all the other genera of the *Helomyzidæ*.

Humeral and prothoracic bristles present ; usually five pairs* of outer dorso-central bristles on the thorax, one pair being in front of the suture (in *oculata* only three pairs are strongly developed). *Eyes larger than usual. Third antennal joint large and rounded, disc-shaped, with a moderately long, microscopically pubescent, arista.* Legs long and slender, with only the front femora at all bristly ; præ-apical bristles very small. Wings (fig. 1) large and long, the spines on the costa present, but very minute ; *stigma elongated*, the first longitudinal (subcostal) vein being continued beyond that point of the costa opposite the middle (discal) cross vein.

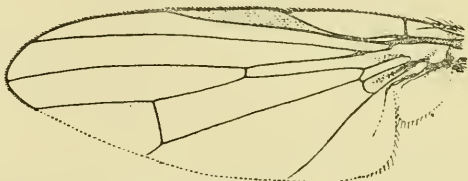


FIG. 1.—*H. rotundicornis*, ♂.

Additional characters in the male only. *Eyes much larger than in allied genera, and more approximated on the frons*, both of which characters are sometimes remarkably developed ; *jowls very small*, and sometimes the face exceedingly narrow. *Abdomen long, very narrow, and very bristly, with inconspicuous genitalia.*

The complete chaetotaxy of the genus is as follows :—

HEAD.—Two pairs of strong *vertical* bristles situated immediately behind the top corners of the eyes, the inner pair convergent, the outer divergent.

One pair of *postvertical* bristles rather small and convergent, situated just behind the ocellar triangle.

One pair of *ocellar* bristles on the ocellar triangle, which point forwards and slightly diverge.

Two pairs of *fronto-orbital* bristles which point backwards and slightly outwards, the lower pair being the weaker (in *H. oculata*, ♂, these bristles are absent because the frons is so very narrow).

One pair of *vibrissæ* and a row of small bristles after each vibrissa along the sides of the mouth opening.

One *genal* bristle on the jowls below the eyes conspicuous among the other minor bristles present.

THORAX.—One *humeral* bristle.

Two *posthumeral* bristles (*notopleural* of Girschner and Becker)† situated in a line with the humeral immediately above the dorso-pleural suture and in the post-humeral depression.

One *præsutural* bristle situated immediately in front of the thoracic suture and almost in a horizontal line with the front posthumeral bristle.

* Loew, in his description of the genus, certainly gave it as possessing only four pairs of outer dorso-central bristles ; I think Loew must have overlooked the fifth pair, which are sometimes rather small, but I do not put much trust in this as a generic character, and should not be at all surprised to find a *Heteromyza* possessing only four bristles of the outer dorsal row.

† In his paper on *Scatomyzidae* Becker uses the term *posthumeral*.

One *supra-alar* bristle situated immediately over the root of the wing and on the edge of the sutural depression.

Two *postalar* bristles on the postalar callus.

Usually five pairs of *outer dorso-central* bristles, one pair being in front of the thoracic suture, though in *H. oculata* there are only three pairs strongly developed.

Of the *inner dorso-central* bristles only a præscutellar, and sometimes one other, pair are present.

Four *scutellar* bristles (two pairs).

PLEURA.—One strong *prothoracic* bristle over the front coxæ.

One strong *sternopleural* bristle at the hind top corner of the sternopleura.

The nearest allies of *Heteromyza* are *Blepharoptera* on the one hand, and *Tephrochlamys* on the other, from either of which it can be easily distinguished by the characters given in italics in my definition of the genus. *Blepharoptera* has decided spines on the costa, and only four pairs of dorso-central bristles on the thorax, while *Tephrochlamys*, though having an almost bare costa, has only three pairs of dorso-central bristles; and in both genera the stigma is not elongated, the first longitudinal (subcostal) vein not being continued beyond that point of the costa opposite the middle (discal) cross vein, but ending in the costa at, or before, that point. Its chaetotaxy will distinguish it from any *Anthomyidous* genus which it may superficially resemble.

The genus was first introduced into our British List by, I believe, Curtis in his Guide, but it is very doubtful if the species there recorded were correctly identified.

The three species may be tabulated as follows:—

- 1 (4) Five pairs of outer dorso-central bristles on the thorax. Antennæ entirely black. Fronto-orbital bristles present in both sexes.
- 2 (3) *Male*.—Frons with a greyish-white vertex and side lines, and much wider than in the next species; face very narrow, much narrower than the frons. *Female*.—Face distinctly narrower than the frons.....1. *atricornis*, Mg.
- 3 (2) *Male*.—Frons all dull red and rather narrow, being about three times as wide at the vertex as the posterior ocelli are apart, but slightly less above the antennæ; face wider than the frons. Wings darkened. *Female*.—Face not narrower than the frons.2. *rotundicornis*, Ztt.
- 4 (1) Only three pairs of outer dorso-central bristles strongly developed on the thorax. Antennæ more or less reddish-brown; eyes of the male very much approximated at the vertex, and in that sex the frons is much wider just above the antennæ than at the vertex and without fronto-orbital bristles3. *oculata*, Flh.

1.—H. ATRICORNIS, Meigen.

♂. Eyes larger, frons wider, and face narrower than in either of the other

species of the genus; the frons at the vertex is about four times as wide as the posterior ocelli are apart, and is almost the same width opposite the lower fronto-orbital bristles, after which it rapidly narrows until just above the antennæ it is not half as wide; the face is still narrower, and the jowls very small. The frons is reddish-yellow about its centre, but the ocellar triangle and side stripes are greyish-white; the face and jowls are whitish-grey, but the back of the head is a darker grey, more the colour of the pleuræ; the antennæ are missing in the specimen from which I am describing. The head in profile is very deep but flat.

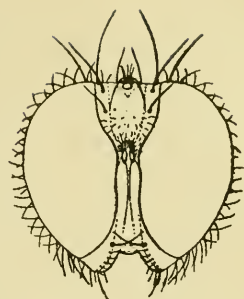


FIG. 2.—*H. atricornis*, ♂.

Thorax slaty-grey, with faint dark stripes; the pleuræ, metanotum, and scutellum are all light slaty-grey.

Length, 7 mm.

This description and figure are made from a male in Bigot's collection, labelled in Macquart's handwriting *Heteromyza atricornis*, Mg.; a female with a similar label is a *Tephrochlamys*, probably *rufiventris*.

Two males taken by Mr. Verrall, one at Chippenham Fen near here on September 29th, and the other in his own garden on December 28th, 1894, differ considerably from the above described specimen, and may prove to be a distinct species. They are smaller (5 mm.), the face is still narrower, and the jowls still smaller, antennæ entirely black; the front facets of the eyes are decidedly dilated, a character that I do not notice in the Macquartian specimen; the stripes on the thorax are fairly evident; the stigma is longer, and the middle cross vein is not opposite the middle of the stigma, but rather nearer the base.

♀. Very closely resembling the female of *rotundicornis*, but I believe that it may always be recognised by its face being distinctly narrower than the frons, and by the vibrissæ being closer together. The head in profile is deeper and flatter, while the eyes are larger (*i. e.*, deeper). It varies a good deal in size (4½ mm.—6 mm.).

I have seen four females taken in Scotland during July and August, 1900, one by Mr. F. Jenkinson at Forres in Elgin, and three by Col. Yerbury at Golspie in Sutherland, while I have studied two females in Kowarz's collection from Marienbad, and five in Bigot's collection, including his three original *H. Delarouzei*.

H. atricornis was introduced as British by Curtis in his Guide, which record Brunetti and Verrall in 1890 tried to confirm, but Brunetti probably, and Verrall certainly, from specimens of the next species. Its larvæ it would appear from the synonymy occur in the excrement of bats.

Desvoidy, in 1841, described a *Thelida vespertilionæa* taken in the "Grotto d'Arcy-sur-Eure," which I believe to be identical with the

present species; Bigot's *H. Delarouzei* described in 1858 from three specimens also taken in a cave (Grotte de la montagne Noire, Department du Tarn) is as he himself acknowledged in 1886 identical with Meigen's *atricornis*. Schiner's description of *Thelida oculata* must refer to the present species, while his *H. atricornis* is probably a true *Tephrochlamys*, as Girschner has already pointed out. Rondani's *Thelida diversa* (1867) is almost certainly another synonym.

2.—*H. ROTUNDICORNIS*, Zetterstedt.

♂. Frons at the vertex only about three times as wide as the posterior ocelli are apart, and about one-third narrower just above the antennæ; the face is not narrower than the frons, and gradually widens out until at the lower corners of the eyes it is about one-half the width of the head; frons all dull red, but with the ocellar triangle brownish-black, there are two pairs of fronto-orbital bristles, the front pair situated about half way down the frons; the face is yellowish, but whitish-grey between the antennæ, in the antennal grooves, and on the jowls; the back of the head is more the colour of the plenræ.

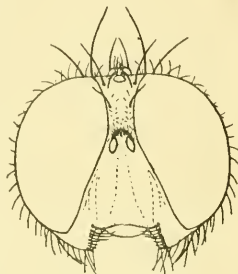


FIG. 3.—*H. rotundicornis*, ♂.

Thorax and scutellum dark brown, as the usual four dark stripes on the thorax are very broad, and occupy almost the entire disc, only leaving a narrow central line and two other very indistinct side lines just outside the dorsal rows of bristles, of a lighter colour; the pleuræ and metanotum are slaty-grey, but that part of the pleura round the root of the wing, including the top of the sternopleura, is tinged with brown. There are five pairs of the outer dorsal rows of bristles strongly developed, one pair being in front of the thoracic suture.

Legs all pale except the front femora, which are obscured about the middle, and all the tarsi which are darkened about their tips; the præapical bristles on the tibiæ are very small, and the apical spur of the middle tibia is very little longer than the tibia is wide, while that of the hind tibia is hardly visible.

♀. Very different to the male, because of its wide frons, pointed and not narrow or particularly bristly abdomen, and its general lighter colour, but very like the female of *atricornis*. The frons is quite one-third the width of the head, and is reddish about the centre and front, but the ocellar triangle and side lines are grey; the face is the same width as the frons, not narrower as in *atricornis*; antennæ large and black.

Thorax much lighter grey than in the male, but a darker grey than the pleuræ and with four faint dark stripes.

H. rotundicornis is apparently the commonest British species of the genus; I have seen numerous males from Lairg, Inveran, and Rannoch, in Scotland (June, July), from Slapton in S. Devon (September), Barmouth in Wales (June), Warrengore in Sussex (April), Glanvilles Wootton in Dorsetshire (February), according to a speci-

men given to Mr. Verrall by the late J. C. Dale; while among the insects as yet unincorporated in the collection at the British Museum I found several specimens taken in Devonshire by Col. Yerbury, during the month of April, including a pair taken "*in coitu*" at Bovisand.

Zetterstedt's description of this species is perfectly recognisable, though he described it as a doubtful *Anthomyza*, which Meade, in 1883, installed in our British List as a *Pegomyia*; Verrall, in the Entomologist for 1890, page 151, being the first to point out the true position of Zetterstedt's species, though he wrongly considered it identical with *H. atricornis*, Mg. Desvoidy's *Thelida filiformis* and Macquart's *H. cinerella* may be synonyms of this species, and either of their names would have priority over Zetterstedt's, but the identification of their insects from the shortness of their descriptions must be pure guess work, consequently I do not feel inclined to accept either of their names. Haliday's description of *H. oculata* in 1833 obviously refers to the present species, and the species Meade described in this Magazine for 1899 under the same name is also probably *H. rotundicornis*, at least the specimen he mentions as having received from Mr. Verrall would be, while he apparently considered there was only one species in the genus.

3.—*H. OCLATA*, Fallén.

♂. In general appearance very like the last species. Eyes not so large (though larger than in the species of allied genera), leaving the jowls larger than in either the last two species. Frons much narrower, being just in front of the ocellar triangle only about as wide as the posterior ocelli are apart, but widening out until just above the antennæ it is four times as wide; there are no fronto-orbital bristles; the face is proportionately wider than in the last species, and the vibrissæ are placed wider apart; in profile the head is rather wider and more semicircular; the antennæ are not so black being brownish-black, with the first two joints and the base of the third joint obscurely reddish.

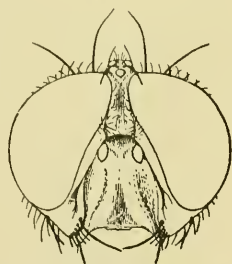


FIG. 4.—*H. oculata*, ♂.

The dark lines on the thorax are not so broad; the scutellum is distinctly paler than the thorax, especially towards its tip where it is yellowish-grey; pleuræ and metanotum light grey. There are only three pairs of the outer dorso-central bristles strongly developed all behind the suture. Abdomen, wings, and legs as in the last species, but the middle tibiæ bear a longer apical spur while there is an evident, though short, spur to the hind tibiæ.

♀. A very different looking insect from the male, being more like a large *Tephroclamyx rufiventris*. The frons is not so wide as in the female of *T. rufiventris*, while the eyes and antennæ are larger, the latter especially so; the back of

the head behind the eyes is not so puffed out, and the front margin of the frons is more concave, leaving the inter-antennal prominence more conspicuous from above. It may be known at once from the female of the other two species by its having only three pairs of outer dorso-central bristles, by its wider face, and by the colour of its antennæ, which are even paler than in the male.

I have only seen four British specimens of this species: two males, one taken by Mr. Percy Grimshaw at Spring Wood, Bradford, Yorkshire, the other by Dr. J. H. Wood, at Stoke Wood, near Tarrington, Herefordshire; and two females, one taken in June by Mr. Verrall at Rannoch in Scotland, the other in July by Col. Yerbury, also at Rannoch; Dr. Meade has recorded *Tephrochlamys magnicornis* from Bradford in Yorkshire, and from Pitlochry in Perthshire (*vide* Ent. Mo. Mag., 1899, p. 101). Of continental specimens I have seen two females, both apparently from Prof. Mik, at least they bear a label with his name, one in Kowarz's collection labelled Hammern, 13.9.72, the other in Bigot's collection, labelled Austr. sup., —9.72.

Haliday's *oculata* of 1833 was the previous species, while *Thelida oculata*, Schin., = *H. atricornis*, Mg. The female has been known since 1859 as *Tephrochlamys magnicornis*, Lw.

The following is an attempt at a synonymical List of the European species:—

HETEROMYZA, Flh., Lw.

Flh., D. Succ. Heterom., (1820), 1; *Mg.*, Syst. Besch., vi (1830), 45, T. 57, f. 19—21; *Meq.*, S. à B. Dipt., ii (1835), 415, T. 18, f. 17; *Ztt.*, Dipt. Scand., vi (1847), 2461; *Lw.*, Zeitschr. Ent. Ver. Bresl., xiii (1859), 9 and 70.

Thelida, Desv., Ess. sur Myod. (1830), 655; *Schin.*, F. Austr. D., ii (1864), 34; *Rnd.*, Att. Soc. Sc. Nat. Mil., x (1867), 129.

ATRICORNIS, *Mg.*, Syst. Besch., vi (1830), 46, T. 57, f. 21, ♀; *Meq.*, S. à B. Dipt. ii (1835), 415, ♂ ♀; *Lw.*, Zeitschr. Ent. Ver. Bresl., xiii (1859), 71; *Girsch.*, Ent. Nachr., xiii (1887), 132; *Strobl*, Wien. Ent. Zeit., xii (1893), 121.

vespertilionæa, Desv., Ann. Soc. Ent. Fr. (1), x (1841), 262 (*Thelida*).

Delarouzei, Big., Bull. Soc. Ent. Fr. (3), vi (1858), cel. ♀ (*t. Big.*, Bull. Soc. Ent. Fr. (6), vi (1886), lxxvi).

oculata, *Schin.*, F. Austr. D., ii (1864), 35, ♂ ♀ (*Thelida*).

diversa, *Rnd.*, Att. Soc. Sc. Nat. Mil., x (1867), 129, ♂ (*Thelida*).

ROTUNDICORNIS, *Ztt.*, Dipt. Scand., v (1846), 1772, ♂ (*Anthomyza*); *Meade*, Ent. Mo. Mag., xx (1883), 13 (*Pegomyia*).

? *filiformis*, Desv., Ess. sur Myod. (1830), 656 (*Thelida*).

oculata, *Hal.*, Ent. Mag., i (1833), 168, ♂ ♀; *Meade*, Ent. Mo. Mag. xxxv (1899), 101.

? *cinerella*, *Meq.*, S. à B. Dipt., ii (1835), 415, ♂ ♀.

atricornis, *Verr.*, Entom. (1890), 151.

OCULATA, *Fln.*, D. Succ. Heterom. (1820), 2, ♂ ♀; *Mg.*, Syst. Besch., vi (1830), 46; *Mcq.*, S. à B. Dipt., ii (1835), 415; *Ztt.*, Dipt. Scand., vi (1847), 2463, ♂.

scutellata, *Mcq.*, S. à B. Dipt., ii (1835), 415, ♀; *Mg.*, Syst. Besch., vii (1838), 367.

magnicornis, *Lw.*, Zeitschr. Ent. Ver. Bresl., xiii (1859), 73, ♀ (*Tephrochlamys*).

Sussex Lodge, Newmarket:

January, 1901.

TIPULIDÆ IN THE WEST OF SCOTLAND.

BY ROBERT HENDERSON.

Since the appearance in the pages of this Magazine of Mr. Verrall's annotated list of *Tipulidæ*, little information concerning the distribution of the group has been made public. Many of the species were at that time known only from localities in England or from old collections, and as not a few of the species which occur in this district are still unrecorded from Scotland, an addition to the records may be acceptable to those interested in the group.

All the species here noted have been taken during the past four years, and are extracted from a list, just completed, which I have drawn up for the "Handbook on the Fauna and Flora of Clyde," now being printed by the local sub-committee of the British Association. The list comprises 133 species, and includes four which, so far as I have been able to ascertain, have not been recorded as British, viz., *Goniomyia connexa*, Lw.; *Pachyrrhina lunulicornis*, Schum.; *Tipula Winnertzii*, Egg., and *T. montium*, Egg. The localities and other particulars given in the list are, of course, too long to be inserted here, and in the following extract I merely indicate the distribution of the species. The nomenclature is that of Mr. Verrall's "List of British Diptera" (1888).

Dixa maculata, Lw.; *D. nebulosa*, Lw., frequent.

Ptychoptera contaminata, L.; *P. paludosa*, Mg.; *P. scutellaris*, Mg., rare; *P. lacustris*, Mg.; *P. albimana*, F., frequent.

Limnobia quadrinotata, Mg.; *L. flavipes*, F.; *L. tripunctata*, F., rare; *L. bifasciata*, Schum.; *L. trivittata*, Schum.; *L. macrostigma*, Schum., frequent; *L. nubeculosa*, Mg., very common.

Dicranomyia aquosa, Ver.; *D. pilipennis*, Egg.; *D. sp.*? (an ochreous species); *D. sp.*? (probably a variety of *D. sericata*, Mg.); *D. stigmatica*, Mg.; *D. didyma*, Mg.; *D. morio*, F.; *D. ornata*, Mg., all more or less rare; *D. dumetorum*, Mg., frequent; *D. modesta*, Mg.; *D. chorea*, Mg. (an extremely variable species), common.

Rhipidia maculata, Mg., abundant.

Geranomyia unicolor, Hal., one specimen at Holy Loch, Argyllshire, on July 11th, 1897. I think this has hitherto been recorded only from South of England and from Ireland.

Rhamphidia longirostris, Mg., not uncommon in three localities near Glasgow.

Orimargo virgo, Zett., rare.

Antocha opalizans, O.S., frequent, very common at Cambuslang on June 16th last.

Empeda flava, Schum., rare; *E. nubila*, Schum., common.

Goniomyia connexa, Lw., one male July 8th, 1899, at Murroch Glen, Dumbartonshire; *G. tenella*, Mg.; *G. sp.?* (a dark species), frequent.

Chilotrichia imbuta, Mg., rare.

Acyphona maculata, Mg., frequent.

Molophilus appendiculatus, Stäg.; *M. propinquus*, Egg.; *M. bifilatus*, Ver., common; *M. obscurus*, Mg.; *M. murinus*, Mg., rare.

Rhypholophus lineatus, Mg.; *R. varius*, Mg., frequent; *R. nodulosus*, Mcq.; *R. hæmorrhoidalis*, Zett., common; *R. pentagonalis*; *R. similis*, Stäg., rare.

Erioptera flavescens, Mg.; *E. fuscipennis*, Mg.; *E. trivialis*, Mg., frequent; *E. tænio-nota*, Mg., common.

Symplecta punctipennis, Mg., rare; *S. stictica*, Mg., frequent.

Lipsothrix errans, Wlk., rare.

Idioptera fasciata, L.; *I. trimaculata*, Zett., rare; *I. pulchella*, Mg., common where it occurs, but one requires a considerable amount of practice to detect the apterous females.

Ephelia apicata, Lw., rare; *E. submarmorata*, Ver.; *E. marmorata*, Mg., frequent.

Dactylolabis Frauenfeldi, Egg., rare.

Pæcilostola punctata, Schrk., frequent.

Limnophila Meigeni, Ver.; *L. ferruginea*, Mg.; *L. discicollis*, Mg.; *L. senilis*, Hal., frequent; *L. dispar*, Mg.; *L. lineola*, Mg.; *L. aperta*, Ver.; *L. bicolor*, Mg.; *L. punctum*, Mg.; *L. lucorum*, Mg.; *L. filata*, Wlk., more or less rare; *L. lineolella*, Ver.; *L. ochracea*, Mg.; *L. nemoralis*, Mg., common.

Trichocera annulata, Mg.; *T. hiemalis*, D.G.; *T. regelationis*, L., common; *T. fuscata*, Mg., frequent.

Anisomera vittata, Mg., rare.

Peronecera fuscipennis, Curt., rare.

Ula pilosa, Schum., frequent.

Dicranota parvula, Hal.; *D. bimaculata*, Schum., rare.

Analopis immaeulata, Mg., common; *A. unicolor*, Schum.; *A. claripennis*, Ver., rare (I submitted this as *A. geniculata* to Mr. Verrall, who says it stands in his collection as the probable *A. straminea* of Walker); *A. straminea*, Mg.; *A. littoralis*, Mg., very local.

Pedicia rivosa, L., frequent.

Cylindrotoma distinctissima, Mg., rare.

Liogma glabrata, Mg., rare.

Phalacroceræ replicata, L., rare.

Dolichopeza sylvicola, Curt., frequent.

Nephrotoma dorsalis, F., rare.

Pachyrrhina imperialis, Mg.; *P. histrio*, F.; *P. maculosa*, Mg., frequent; *P. scurra*, Mg.; *P. sp.?* (resembles *P. analis*, Schum., but with black markings on pleuræ); *P. guestfalica*, Westh.; *P. quadrifaria*, Mg.; *P. annulicornis*, Mg., rare; *P. lunilicornis*, Schum., both sexes, about a dozen examples from two localities. I submitted specimens to Mr. Verrall, who thinks my identification is correct.

Tipula pagana, Mg.; *T. obsoleta*, Mg.; *T. confusa*, V. d. W.; *T. vittata*, Mg.; *T. gigantea*, Schrk., frequent. *T. signata*, Stäg.; *T. marmorata*, Mg.; *T. rufina*, Mg.; *T. nubeculosa*, Mg.; *T. plumbea*, F.; *T. pruinosa*, W.; *T. luteipennis*, Mg.; *T. flavolineata*, Mg.; *T. lunata*, L.; *T. Diana*, Mg.; *T. vernalis*, Mg.; *T. fascipennis*, Mg.; *T. peliostigma*, Schum.; *T. ochracea*, Mg., more or less rare; *T. longicornis*, Schum.; *T. varipennis*, Mg.; *T. scripta*, Mg.; *T. lutescens*, F.; *T. oleracea*, L.; *T. paludosa*, Mg., common. Of the two last named it may not be without interest to remark that *T. paludosa* is by far the commoner and more widely distributed species in this district. It is very abundant almost everywhere, while *T. oleracea* is never numerous in any locality. *T. oleracea* has been taken from May till July, and rarely in September, and *T. paludosa* from July till September, but occasionally in the latter part of June. *T. Winnertzii*, Egg., two males at Strone, Argyllshire, July 3rd, 1900. Mr. E. E. Austen was good enough to name this, but says he is not quite satisfied about it. *T. montium*, Egg., a common and widely distributed species, occurring from end of May till end of August, confirmed by Mr. Austen.

12, Armadale Street, Glasgow :

March, 1901.

HADENA LATERITIA, HUFN.,

A *NOCTUA* NEW TO BRITAIN, TAKEN IN SOUTH WALES.

BY C. G. BARRETT, V.-P.E.S.

Among some moths from South Wales recently sent up for examination by Mr. H. W. Vivian, F.E.S., I was surprised and interested to find a specimen of *Hadena* (*Xylophasia*) *lateritia*, Hufn., in tolerably fine condition. This specimen was not, as it appears, actually captured by Mr. Vivian, but by Mr. W. E. R. Allen, of Llandaff, who informs me that he took it at Porthkerry, on the coast of Glamorganshire about the year 1887, and that failing to identify it he gave it to Mr. Vivian. Probably less trouble was taken about it because this species bears a striking resemblance in size and form, and in some degree in colour and markings, to *Aplecta advena*. It is not, however, of so glossy a texture nor so smooth-looking as that species, the tint of its fore-wings is more of a red-brown or liver-colour; the stigmata, which in *A. advena* are very large and delicately outlined, are in this species only represented by the reniform, or rather by its blackish outer edge and a yellowish cloud within; the second

line is visible as a series of dull black dots upon nervures; on the costa are several pale yellow dots. Hind-wings smoky whitish-brown, abdomen very pale reddish-drab with a large fulvous anal tuft. This species was included by Mr. H. Doubleday in his list of reputed British species, but I am unable to find any actual record of its previous occurrence. It is not, however, an unlikely species to occur with us, since its range, as given by Standinger, includes Central Europe and the greater portion of Northern Europe—almost accurately, in fact, the range accorded to *Xylina furcifera*, Hufn. (*conformis*, Fab.), which with us is also confined apparently to South Wales.

Among the specimens from South Wales referred to above are several interesting species:—

Deiopeia pulchella, L., one specimen, in which the rows of black dots being well marked, the pink markings are almost obsolete; taken also at Porthkerry, Glamorganshire, by Mr. W. E. R. Allen. *Dianthea luteago*, var. *Barrettii*, Dbld., a very dark, strongly marked specimen, taken on one of the small islands off the South Wales coast by Mr. Vivian. *Eupithecia satyrata*, Hüb., a form apparently intermediate between the type and the var. *callunaria*, but smaller than either, and having the markings very faint; taken in Glamorganshire by Mr. Vivian. *E. lariciata*, Frr., a specimen of not more than one half the normal size. *E. exigua*, Hüb., a specimen in which the ordinary markings are obliterated from the dorsal half of the fore-wings, giving the insect a totally different aspect. Both of these also obtained by Mr. Vivian in South Wales. *E. virgaureata*, Dbld., this is a very interesting form, either wholly smoky black, with the exception of the black discal spot and faint traces of the whitish subterminal line, or else tending in that direction—a fine example of the melanic tendency now noticeable in so many *Geometridæ*, and especially of late in some species of the present genus. These dark forms were reared by Mr. Vivian from larvæ collected in Glamorganshire.

Tremont, Peckham Rye, S.E.:

April 9th, 1901.

NOCTUA CASTANEA, ESP., VAR. XANTHE, N. VAR.

BY F. C. WOODFORDE, B.A., F.E.S.

The object of this paper is to call more general attention to a very striking and exceedingly local form of *Noctua castanea*, which I believe only occurs in North Staffordshire.

In this form the colour of the primaries, instead of the usual red (as in *N. castanea* type) or grey (as in var. *neglecta*, Hb.), is a rich yellow, approaching more closely to that of mustard than anything else I can think of, but also somewhat similar to that of the ♂ *Euthemonia russula*. The colour is darker towards the base, paling off a little towards the hind and inner margins. The thorax is of a darker, almost orange, yellow; and the cilia of the secondaries are paler, approaching a lemon colour. The reniform stigma has the inner portion dark grey, almost black, and the margin is visible, though not very distinct. The orbicular is slightly paler than the ground colour.

The first specimens were taken at sugar near Market Drayton, in August, 1891, by Mr. Bowyer, who was my companion at the time, and myself. The species was very abundant that year, and came freely to sugar, it being possible to take from fifty to sixty specimens in an evening. Altogether in that year nine of the yellow form were taken at sugar, and I also bred one among a number of the ordinary forms. Next year, though numerous, the species was not much attracted by sugar, and not many were taken, but among them was a yellow one. In 1895 and 1896 the species was again abundant, and came fairly to sugar, but all the specimens taken were of the ordinary forms. 1900 was again a good year, though only for a limited time, and on August 14th, 15th, 17th, and 18th, I took a single specimen of the yellow form each night.

Thus altogether fifteen specimens of this form have been taken, comprising, I think, about $3\frac{1}{2}\%$ of the total number of specimens of *N. castanea* seen or taken. I think the re-occurrence of this variety in three separate years shows that the form is constant, and not merely a chance aberration, as was my idea on first taking the insect; and I therefore propose to name it var. *xanthe*.

I sent one of the 1891 specimens of this var. to Mr. Barrett, who has figured it in his "Lepidoptera of the British Islands," vol. iv, pl. cxlviii, fig. 26. The first notice of the occurrence of this form of *N. castanea* was sent to the "Entomologist," vol. xxv, p. 70, by my friend the Rev. T. Dalry.

Notes on the re-occurrence of the insect in 1900 appeared in the "Entomologists' Record," vol. xii, p. 297.

I hope this short paper will establish its claim to a distinct varietal name, and that the name I propose will be considered sufficiently descriptive and satisfactory.

Market Drayton :

March 26th, 1901.

ON SOME TERATOLOGICAL SPECIMENS OF *LEPIDOPTERA*.

BY SIR GEORGE F. HAMPSON, BART., F.Z.S., &c.

(Continued from 2nd Series, Vol. xi, p. 198.)

The specimens now described have been added to the collections of the British Museum of Natural History since I published the notes on the same subject, Ent. Mo. Mag., September, 1900, p. 197; most of them have been kindly presented by Mr. South, who had been accumulating them for some years.

ARCTIADÆ.

Diacrisia lubricipeda, Linn., ♂. Right eye and antenna entirely wanting; bred by A. M. Montgomery, Ealing, May 6th, 1900.

Arctia caia, Linn., ♂. Left side with both wings smaller than on right; fore-wing on right side with the brown markings of medial area reduced to small spots in and near cell; bred R. South, 1890. ♀, left side with the wings considerably narrower than on right. Isle of Man, R. South. ♀, wings small and malformed; fore-wing with the white markings much reduced; bred R. South, 1892. ♀, wings malformed, especially the hind-wings, which have the black spots confluent; fore-wings with the white markings reduced to small spots; bred R. South, 1888.

NOCTUIDÆ.

Agrotis pronuba, Linn., ♂. Left fore-wing with the costa excised before apex; left hind-wing with the apex excised; right hind-wing with the termen greatly excised below apex. Hazleleigh, June 30th, 1900. Rev. G. H. Raynor.

Agrotis comes, Hübner, ♂. Wings malformed, especially the hind-wings, which are half natural size; bred R. South, ova from Forbes.

Mamestra brassicæ, Linn., ♀. Left side with the apex of fore-wing truncate rounded. Balham, June, 1898; bred R. South.

Mamestra myrtilli, Linn., ♀. Hind-wings reduced to two-thirds natural size. Canterbury, June, 1888; bred R. South.

LYMANTRIADÆ.

Lymantria monacha, Linn., ♂. Right fore-wing with the costa truncate and excised on apical third; melanistic; R. South. ♀, left hind-wing entirely absent; melanistic; R. South.

SATURNIADÆ.

Saturnia pavonia, Linn., ♂, wings narrow; fore-wings with the basal half of costa strongly excised and concave; left hind-wing with the apical part of costa excised; R. South.

GEOMETRIDÆ.

Heteromiza obliquaria, Leech, ♂. Fore-wings represented by minute scales only, otherwise fully developed. W. China, Ta-Chien-Lu; Pratt.

Hygochroa syringaria, Linn., ♀. Right hind-wing reduced to about one-fifteenth natural size; R. South.

Boarmia roboraria, Schiff., ♂. Hind-wings aborted, and about one-third natural size; bred 1890; R. South.

Boarmia cinctaria, Schiff., ♂. Right hind-wing aborted, and about one-fourth natural size; bred 1890; R. South.

Deilinia pusaria, Linn., ♂. Hind-wings aborted, narrow, constricted at middle, the terminal half tinged with pink; R. South.

LASIOCAMPIDÆ.

Eriogaster lanestris, Linn., ♀. Ova protruding between segments of abdomen on dorsal surface; bred April 1st, 1892, with some males, protrusion of ova first noticed May 12th, 1892; R. South.

NYMPHALIDÆ.

Pyrameis atalanta, Linn., ♂. Left fore- and hind-wings reduced to about two-thirds natural size; bred 1899; R. South. ♀, left fore-wing rather smaller than natural size; left hind-wing about two-thirds natural size, the orange terminal band much reduced and without black spots on it; two whitish subterminal marks below apex, and no blue marks at tornus; bred 1895; R. South. ♀, left fore- and hind-wings somewhat reduced, the fore-wing with the termen much more excised below the falcate apical area than in normal specimens; bred 1897; R. South. ♀, right fore- and hind-wings somewhat reduced in length, but not in breadth; right fore-wing with whitish marks on the two lowest spots of the red band; bred 1897; R. South. ♀, right fore- and hind-wings somewhat reduced; bred 1899; R. South.

Apatura iris, Linn., ♀. Wings considerably distorted; right fore-wing with the tornal area excised and distorted; left fore-wing with the tornal area dilated; both hind-wings with the tornal area reduced. New Forest, 1879; G. Gulliver.

Argynnis paphia, Linn., ♂. Right fore-wing with the apical area considerably aborted and produced, a whitish postmedial patch between veins 5 and 7; left fore-wing somewhat reduced; right hind-wing with whitish subterminal patch between veins 3 and 5; R. South.

Melitæa aurinia, Rott., ♀. Right fore-wing with the costa very much excised from one-third from base to near apex. Lincolnshire, bred 1891; R. South.

Melitæa athalia, Rott., ♀. Right hind-wing reduced to about two-thirds natural size. N. Devon; bred; R. South.

Melitæa cinxia, Linn., ♀. Right fore-wing reduced to about three-fourths natural size, and somewhat distorted; right hind-wing somewhat reduced.

SATYRIDÆ.

Epinephele tithonus, Linn., ♂. Wings somewhat distorted; left hind-wing reduced to about two-thirds natural size. Effingham; R. South.

PIERIDÆ.

Aporia davidis, Oberth., var. *venata*, Leech, ♂. Right fore-wing reduced to about three-fourths natural size; left fore-wing about two-thirds natural size, the termen deeply incised above vein 2, and the tornal area truncate. W. China. Leech Coll.

Euchloë cardamines, Linn., ♂. Left fore-wing with round hole beyond the cell between veins 3 and 4; left hind-wing with larger hole in lower end of cell, the discocellular vein being displaced outward around it; right hind-wing somewhat distorted and reduced. Hazeleigh; bred 1900; Rev. G. H. Raynor.

LYCENIDÆ.

Lycæna corydon, Poda, ♂. Left hind-wing with the inner margin excised from before middle to tornus. Clandon; July, 1900; R. South.

Lycæna icarus, Rott., ♂. Right fore-wing with the apical area truncate, the termen excised below apex; right hind-wing somewhat reduced, the termen excised between veins 7 and 2, and the inner margin truncate towards tornus.

Folkestone; R. South. ♂, left fore- and hind-wings reduced to about three-fourths natural size; fore-wing with the termen excised from vein 5 to tornus, hind-wing with the termen excised from vein 4 to tornus. Ventnor; June, 1887; R. South. ♀, left fore-wing reduced to about three-fourths natural size, a large hole in end of cell, the discocellulars carried out round it and the veins distorted. Kent; R. South.

Lycæna bellargus, Rott., ♂. Left fore-wing with the apical area truncate, the termen excised below apex; left hind-wing with the termen excised between veins 6 and 2. Folkestone; R. South. ♂, left hind-wing about two-thirds natural size, very narrow and rather short. Folkestone; R. South.

Cupido argyrotoxus, Bergs., ♀. Right hind-wing about two-thirds natural size, short and broad, the black spots before the orange series reduced to three medial and three postmedial spots. Ventnor; August, 1883; R. South.

PAPILIONIDÆ.

Papilio machaon, Linn., ♀. Right fore- and hind-wings about three-fourths natural size; fore-wing with the apex truncate and rounded: hind-wing with the tail short; bred from Soham pupa, May, 1893; R. South.

HESPERIADÆ.

Cyclopades palæmon, ♂, right hind-wing about half natural breadth, the tornal area much reduced and the termen very oblique. Newball, June, 1894; Rev. G. H. Raynor.

ZYGÆNIDÆ.

Zygæna filipendulæ, Linn., ♂. Wings reduced to minute scales; fore-wings without crimson; hind-wing with crimson points. Bred. Folkestone, 1884; R. South. ♂, right fore-wing with the termen triangularly excised between veins 8 and 4; R. South. ♂, right fore-wing with elongate incision in termen above vein 4; vein 5 arising from close to 6 above angle of discocellulars. ♀, fore-wings lanceolate, about one-tenth natural size; the crimson markings reduced to a fascia on costal area from before middle to near apex; right hind-wing entirely absent; left hind-wing minute, the termen incised, two crimson patches on terminal area; R. South. ♀, the wings reduced to about one-third natural size, bidentate, the whole terminal area absent, being triangularly excised from two-thirds of costa to middle of median nervure and thence to tornus; R. South. ♀, left fore- and hind-wings with rounded patches on disc in, beyond, and below end of cell, almost without scales. Bred. Folkestone, 1884; R. South.

Procris geryon, Hübn., ♂. Left fore-wing rather reduced, the apical area truncately rounded; June, 1893; R. South.

TORTRICIDÆ.

Cacœia piceana, Linn., ♂. Right hind-wing entirely absent. Bred. R. South.

British Museum (Natural History):

March, 1901.

NOTES ON *METZNERIA LITTORELLA*, DGL.

BY EUSTACE R. BANKES, M.A., F.E.S.

In the South of England the extremely local and much-prized *Metzneria littorella*, Dgl., usually reaches the perfect state in the month of May: it was originally taken, at Ventnor, Isle of Wight, early in May by the late Mr. S. Stevens, and Lord Walsingham, who re-discovered it there in 1898, says (Ent. Mo. Mag., Ser. 2, xi, 127) that it occurs "from May 6th to 29th (and perhaps later)." My disappointment, therefore, may well be imagined when, by the end of May last, not one single imago had appeared in the breeding-cages which contained two large batches of seed-heads of *Plantago coronopus*, collected by myself at random (for of the weather worn, often mud-covered, heads, one could not tell the tenanted from the untenanted ones) in two spots, near Ventnor, on January 30th and 31st, and one small batch kindly sent me previously from there by Lord Walsingham, who has recently discovered and described the larva and its habits (Ent. Mo. Mag., *l. c.*). At length, however, my spirits began to revive when, on June 17th, my eyes were gladdened by the sight of a freshly-emerged imago. This was soon followed by others, and in course of time the two large batches of seed-heads each yielded a nice series of moths, which emerged June 17th—July 9th, and June 19th—July 25th, respectively, while from the small batch four moths were bred, June 21st—29th. I can only suppose that the retarded emergence of the moths was due to the lateness of the season, combined with the fact that the plantain-heads were kept under a box-bush in my garden, out of the direct reach of the sun's rays, until about the middle of May, when they were transferred to a fireless room, facing north. The seed-heads also yielded numbers of small ichneumon flies, not yet identified.

M. littorella is by no means so regular as some species at emerging from the pupa at a particular time of day, but the imagines usually did so between 7 a.m. and 10 a.m., though some appeared before the former, and others after the latter hour. They are exceptionally sluggish and retiring in habit, as noticed by Lord Walsingham in nature, and very difficult to find and secure, even in the breeding-cage, where they like to hide away from sight among the mass of plantain stalks, resting with their peculiarly narrow forms placed lengthwise along the stalks to which they cling. The males, as a whole, emerged before the females, nearly all the early individuals being males, while nearly all the late ones were females; but, of

course, for a while the sexes were coming out simultaneously. The individuals of both sexes vary surprisingly in size, the males from 9 to 13.5 mm., and the females from 8 to 13 mm., and all intermediate sizes are well represented. Some specimens are rather more grey, with the black spots more numerous and larger, while others are somewhat whiter, or more ochreous, with the black spots fewer and smaller, but the slight variation to be seen in colour and marking is not sexual. The ovipositor of the female is of considerable length, doubtless to enable it to hide its eggs away safely in the middle of the seed-head, and in dead specimens is generally more or less extruded.

The full-fed larva hibernates, head upwards, in its mine inside the seed-bearing stem, and in the spring it pupates therein, as suggested by Lord Walsingham. Being anxious to learn more of its habits, I lately opened up numbers of the stems (a most laborious task) until I had collected many larval mines, fully a score of which contained pupa-shells enclosed in cocoons. The mine inside the stem sometimes extends downwards a little below the level of the lowest seed-vessels, but it was never found to reach more than 13 mm. below this point, and all the cocoons were above it, some being only just above, while probably all were within 20 mm. of it. Since the stem is too narrow to contain the pupa, the larva widens that part of its mine, which has been chosen for the site of the cocoon, by gnawing away, to a greater or less extent according to the necessities of the case, the walls of the stem and of the adjacent seed-vessels: then, in the wider chamber thus formed, it spins a tough cocoon, the walls of which, except where the natural stem walls are left intact and utilized, are composed of gnawed up vegetable fibre mixed with cement, and nearly resemble, both internally and externally, the natural stem-walls. The whole of the interior of the cocoon is thinly lined with white silk, which looks glossy and hard as if it had been besmeared with gum; its surface, however, is not very smooth and even. In its nature and composition, the cocoon, which varies considerably in size, but would average about 6.2 mm. long, by 1.4 mm. broad at its widest part, reminds one strongly of that of a *Cerura*. The upper end of it always occupies the interior of a hollowed-out seed-capsule, through the top of which, apparently weakened by the larva, the imago escapes, leaving the whole of the pupa-shell behind it, inside the cocoon. The remainder of the cocoon lies in the enlarged larval mine, except when, as occasionally happens, the lower end, which always has a pad of white silk threads spun across it, occupies another seed-vessel. The pupa, as shown by the position of the empty shell, stands upright with its anal extremity, surrounded by the cast larval skin, resting on this silken pad. In one solitary instance, among fully a score of cocoons that were examined, the whole cocoon lay *outside* the stem, in a chamber parallel to, and formed against, the wall of the stem, by the larva having gnawed away part of the substance of the wall, and parts of three adjacent seed-vessels. In another single instance, an abnormally thick stem was wide enough in itself to contain the cocoon, the upper end of which, however, occupied, as usual, a seed-capsule.

The following brief description was made from the empty pupa-shells. These will be sent to my esteemed friend, Dr. T. A. Chapman, in the hope that they may afford something of interest to the specialist.

Length, 4—5 mm. Greatest breadth, 0.9—1.2 mm. Slender and attenuated in shape, broadest across the posterior part of the mesothorax, and tapering thence somewhat towards the head, which is rather narrower than the prothorax, and decidedly towards the anal extremity. Shell very smooth and highly polished, orange-ochraceous, with the head parts conspicuously blackish-brown as a rule, though sometimes brown, and occasionally concolorous with the rest of the shell. Cases of appendages clearly defined, and soldered to the main shell throughout their entire length; those of the antennæ, wings, and hind legs are very long, their extremities reaching to the end of the eighth abdominal segment, that is, nearly to the end of the pupa-shell. A powerful lens shows a few minute, straight, pale hairs, or bristles, on the dorsal surface of the eighth and ninth abdominal segments, but the anal extremity itself is destitute of anal armature.

Reference to a detailed description of the larva, made for my own use in March last, is needless, Lord Walsingham having, since then, published a description of it, as already stated. I will, therefore, only mention that I was much struck by the remarkable power shown by the larva (which, when moved about, lets out a strong silken thread) of reducing its length to a minimum by contracting together all its segments, including the head, which is retractile into the prothorax.

Douglas, in Trans. Ent. Soc. Lond., N.S., i, 67 (1850), and Stainton, in Ins. Brit. Lep. Tin., 128 (1854), mention the Isle of Wight as the only known British locality for *littorella*, but in the Manual, ii, 341 (1859). Stainton gives it as also occurring, and that commonly, at Birkenhead, to which record Meyrick's entry of Cheshire as a locality for it, in HB. Br. Lep., 579, clearly refers. I shall be grateful to any one who can tell me whether these Birkenhead specimens were genuine *littorella*, who captured them, and where they are now located. In Ent. Wk. Int., ii, 157 (1857), J. B. Hodgkinson records the capture by himself of *littorella* "in this neighbourhood," *i.e.*, near Preston, where he was then living, and adds that, if he is rightly informed, the Isle of Wight and Ireland are the only localities where the insect has previously been taken. I believe that his information about Ireland must have been unreliable, for I have never heard or seen any record of its occurrence there, nor is it included in Mr. W. F. de Vismes Kane's Catalogue of the *Lepidoptera* of Ireland, just concluded in the "Entomologist;" and as regards Hodgkinson's reputed capture at Preston, I imagine that, as not unfrequently was the case, his identification was incorrect. At any rate, I fancy that nothing more was ever heard of the occurrence of *littorella* at Preston, and the facts remain that Stainton did not give Preston as a locality for it in the Manual, of which the part containing the notice of it was not published till two years after Hodgkinson's

note, and that Hodgkinson's collection, at his death, contained only a solitary individual of the species, which, from the style of pinning and setting, looked as if it was certainly one of the specimens taken by Stevens at Ventnor. I am aware that Hodgkinson, in his earlier years, sometimes disposed of rare insects out of his collection, but have never heard of his distributing any *littorella*.

Norden, Corfe Castle :

March 13th, 1901.

CURIOUS EXPERIENCE WITH *LASIOCAMPA QUERCÛS*.

BY EDWARD ANDREWS.

During a short stay in the New Forest last year at the beginning of August, I came upon a female specimen of *L. quercûs*. It laid about one hundred eggs, which hatched in the course of twelve days. The young larvæ flourished upon oak until September 20th, growing very slowly, and eating at rather wide intervals, as is, I believe, their custom. As soon as oak began to fail, I obtained fresh shoots from a broad-leaved sallow, which had burst into green again on account of its having been partially hewn down. They devoured this with equal relish until as late as October 10th, when, other foliage having become scarce, I gave them common willow. By now every one of them, without exception, had exceeded the stage at which *L. quercûs* hibernates. Instead of refusing food, however, they began to eat with a rapidity only to be equalled by the slowness with which they had taken their meals in August and September.

This, at first sight, may appear a little strange, cooler weather having set in, darker days, and an atmosphere of general decay and damp enough to send any larva to sleep. But from the very beginning I had kept them indoors; had washed their food with wet wadding, and changed it twice daily, with the result, I conclude, that my larvæ still imagined themselves in the middle of summer. They grew steadily on willow until November 10th, when, this too failing, I gave them bramble. Towards the end of the month their progress slackened considerably. Previous to this they had occupied about six days changing their skins; now, however, the last such transformation extended over a period of twelve days, three of which were spent in "drying" from the effects of the change. I began to think that they would fail, especially as bramble was fast becoming uneatable, and nothing within my knowledge remained for them to feed upon. In my perplexity I wrote to the Editors of this Magazine, who very kindly furnished me with a number of interesting details, of which I had been quite ignorant. The result was that I watched them with the greatest care, feeding them now upon ivy, which they devoured with as much relish as though it were oak or common willow.

On December 15th, one larva made its cocoon, and from that date onward every one of them, without exception, passed into the pupa state. On this point there was some difference of time, the first having spun on December 15th, and the last spinning as late as the first week in February.

It is highly probable that the cold weather was the cause of their almost total

stagnation during January, at which time so sparingly did they eat, and so slowly did they grow, that I began to think they were partially hibernating; many of them remained quite inactive for six days before spinning.

About February 23rd one moth emerged, a male, and its appearance was soon followed by another male and several females, one of which approached the northern race in the dusky tint of its wings. Up to the time of writing—March 22nd—thirteen have expanded their wings, seven of which are females and the remainder males. I was fortunate enough to mate a pair, and am now the honoured possessor of one hundred and fifty eggs, a state of things somewhat curious for the month of March!

Two very interesting illustrations of the effect of temperature on *L. quercus* occurred. Early in January I opened one of the cocoons for the purpose of examining the pupa, but found that the larva had not yet changed. I had divided the brood into two boxes, one of which I kept in a cold, and the other in a warm, room. Covering up the larva with cotton wool, I placed it in the cold room, and, not expecting any moths to emerge for some time, left it there. At the end of six weeks, on opening the box and expecting to see the pupa, I was considerably surprised to find the larva in precisely the same condition—grub-like, alive, and healthy. I therefore removed it to the warm room, and in three days it had changed into a pupa.

The other instance was in the case of the first male that emerged. The temperature of the room in which it was placed varied from sixty to seventy degrees Fahrenheit in the day time, and from forty to fifty in the night. Early every evening for five days the imago made faint attempts at breaking through its pupa case. Throughout the morning, when the room was cold, it never moved at all; when the frost gave way it emerged. It appeared to lack energy enough to creep out until the temperature assumed a distinctly high and constant figure, at which time the second male appeared.

The complete success of this entomological experiment of course owed its origin largely to the sumptuous manner in which the larvæ were reared from the beginning to the end. I kept their cage well ventilated, and their food spotlessly clean, taking pains at the same time to give them plenty of light. The oak during September, and the sallow, willow, and bramble for the most part were all as fresh as the smallest and greenest spring leaves. Only during December and January were they forced to devour somewhat tough and stringy foliage. They were also supplied with a constant "drinking trough" in the shape of wadding sopped with water. It was a curious spectacle to watch these creatures pause in their perambulations, fasten their jaws in the soaking wool and draw in the liquid after the manner of cows. I have never reared this species before, and consequently am not sure of the date at which it usually hibernates. But as far as I can recollect, my larvæ showed no sign whatever of any stagnation during the autumn. Only their general growth was slow. They expanded most rapidly during the latter half of October and the first half of November.

The hairs of the larva had an exceedingly irritating effect upon my skin. I could not touch them without converting parts of my fingers into clusters of milky white blains; oddly enough, they had no effect upon me whatever until the larvæ had arrived at the last stage but one, and then to simply touch the grey hairs

which grow down the back as thick and close as velvet pile was quite sufficient. These adhere to the flesh with the readiness of finest splinters. They remove themselves from the larva's coat as though they were balanced like so many miniature arrows in hollow cases.

The manufacture of the cocoons is a very clever piece of art. The first covering consists of web; the second consists of a glutinous secretion—probably the web itself in a liquid state—which they smear over the first; and the final coat is web again. The hairs of the larva are also mixed with the outer covering, and in consequence I am unable to handle the cocoons very much without enduring a certain amount of irritation.

192, Devonshire Road,
Forest Hill, S.E. :
March, 1901.

Application for British Stratiomyidæ, &c.—In this Magazine for Sept., 1897, I made a request that I might be assisted in examining freshly caught specimens of *Platypezæ*. The result was astonishing, as fine series of little known species were sent to me from various sources, and I was consequently enabled to clear up many very complicated cases of synonymy, not only for Britain but also for Europe.

I am now working at a second volume of my "British Flies," which would be Vol. V of the "Scheme." This Vol. is entitled "*Stratiomyidæ to Cyrtidæ*" in my Introductory Notice. I want to see British specimens of *all* species which appeared in italics in my "List of British *Diptera*" for these families; I should also like to see any specimens of *Oxycera* (except *O. pulchella* and *O. trilineata*), and any specimens of *Odontomyia* (except *O. ornata*, *O. tigrina*, and *O. viridula*). *Sargus flavipes* is at present a jumble, and I specially want to see the male of a species which occurs in the Forest of Dean. Any *Xylophagidæ* will be welcome. *Hæmatopota italica* should be looked for in the neighbourhood of Leigh and Southend in Essex. I should be glad to examine any of the uncommon species of *Tabanus*, and I especially want to see good series of any species of *Therevidæ* (except *T. annulata* and *D. anilis*), but they must be in *most perfect condition as to their pubescence*. In a similar way I want to see series of the "*Paniscus*" group of the genus *Anthrax*, but the greatest care should be taken that the pubescence is not injured. Specimens of *Scenopinus* are welcome, and I should be glad to receive authentic localities for all species which will be included in the volume.—G. H. VERRALL, Sussex Lodge, Newmarket: April, 1901.

Selenia bilunaria, Esp. (= *illunaria*, Hb.), apparently not double brooded in Scotland.—In the recent account of this moth in Mr. Barrett's "*Lepidoptera of the British Islands*," no reference is made to the fact, alluded to many years ago by the late Dr. Buchanan White, that so far as is known the species is only single brooded in North Britain. Buchanan White's remark (Scot. Nat., vol. iii, p. 275) is as follows:—"A second brood . . . occurs in England and elsewhere, but in Scotland it is of very rare occurrence, at least in the north, if it happens at all." As far as my own experience goes—and it coincides with that of other entomologist

to whom I have spoken on the subject--the moth occurs here only in May and June, seldom far into the latter month, though in 1891 I took two specimens still in fair condition as late as the 22nd.—WILLIAM EVANS, 38, Morningside Park, Edinburgh: *March 10th*, 1901.

Dark aberration of Heliothis peltigera, Schiff.—From a larva on *Ononis arvensis*, collected with others on the Isle of Purbeck coast in July, 1894, I bred, on the 13th of the following November, by far the darkest individual of *Heliothis peltigera* that I have ever seen. The fore-wings have the ground colour dull burnt-umber, with the principal markings of the usual character, but rendered very inconspicuous by the uniform darkness of the ground colour. The hind-wings, also, are exceptionally dark, the parts of them that are generally pale being clouded over with fuscous. The specimen is a female, and has the fore-wings abnormally narrow, their greatest breadth being 1 mm. less than in an ordinary specimen of the same expanse, and the right hind-wing slightly crippled: it was the last to emerge, the other imagines appearing from September 2nd to October 29th.—EUSTACE R. BANKS, Norden, Corfe Castle: *March 15th*, 1901.

Acanthopsyche opacella: correction of an error.—At Ent. Mo. Mag., p. 63 *ante*, last paragraph, I wrote, "this Tachinid has learnt on some other species, or on Psychids generally, how to produce," &c. Absence from England prevented my correcting the proof, hence the curious phraseology that appears.—T. A. CHAPMAN, Betula, Reigate: *April*, 1901.

Observations on Sphecodes.—Referring to the most interesting review of the state of our knowledge of the habits of *Sphecodes* in recent Nos. of this Magazine by the Rev. F. D. Morice, it may be worth while to note that we can add the genus *Colletes* to *Halictus* and *Andrena* as sharing the special attention of *Sphecodes*. My friend Mr. Robert Newstead, of Chester, paid considerable attention to Aculeates before he took up his work upon the Coccids; and I have a note of his recording that he once took *Sphecodes pilifrons* ♀ entering the burrows of *Colletes cunicularia* at Wallasey; and this was not an isolated accident, as he took three specimens of the *Sphecodes* from the tunnels of the *Colletes* on the same day. As this was early in May, the *Sphecodes* would, I presume, be hibernated.—WILLOUGHBY GARDNER, Reform Club, Liverpool: *April*, 1901.

Corsican Ants bred (Leptothorax angustulus, Nyl., and Bothriomyrmex meridionalis, Roger).—It may assist some future historians, when writing on the time of appearance of the sexes of ants, if I record my observations on two species while I was in Corsica. At the end of June I saw some small ants, and being desirous of obtaining the winged forms of the species, I traced them to a decayed stump of a large chestnut tree, and by searching I procured large and small pupæ (cocoons). I carefully placed them in a bottle with some workers and decaying wood, and for food I placed a knob of white sugar dipped in water; they readily adapted themselves to their new home, and appeared very contented; on July 2nd and following days I had the pleasure of seeing the sexes of *Leptothorax angustulus*.

The following week I observed another small species, and repeating the former process, I obtained males, females and workers, on July 26th and following days, of *Bothriomyrmex meridionalis*.—G. C. BIGNELL, Saltash, Cornwall: *March 14th*, 1901.

Note on Athalia spinarum, L.—The Rev. F. D. Morice remarks (*ante* p. 98) on the apparent scarcity of this sawfly in Britain at the present day. I think he might go further back. Thirty and more years ago I used to collect sawflies diligently, and still retain my collection. I quite remember that this was always a desiderated species with me, and personally I seem to have captured only a single example, which was taken in Darenth Wood in May, 1868. It is true that I never investigated turnip or mustard fields, but the insect feeds on various uncultivated *Cruciferae*, and should not be the rarity that it has apparently become. Is it still known as an agricultural pest anywhere in this country?—R. McLACHLAN, Lewisham, London: *April*, 1901.

Society.

ENTOMOLOGICAL SOCIETY OF LONDON: *March 6th*, 1901.—The Rev. Canon FOWLER, M.A., F.L.S., President, in the Chair.

Mr. E. W. Lane, of 9, Teesdale Street, Hackney Road, N.E., was elected a Fellow of the Society.

Mr. H. St. J. Donisthorpe exhibited a parasite, or *Braconid*, on *Ceuthorrhynchus sulcicollis*, bred from the galls on a turnip caused by the larva of that beetle, together with the host. Mr. A. J. Chitty, a variety of *Psylliodes cyanoptera*, Ill., the coloration of the thorax dark instead of the usual red, taken by him along with the typical form in August, 1892, at Wicken Fen, close to the Pumping Station. Mr. H. J. Turner, a long series of *Bryophila muralis (glandifera)* from Dawlish. The whole were either taken on, or bred from pupæ cut out of, a single roadside wall some hundred yards long, very lofty, and facing nearly north, on which aspect, however, it was protected by higher ground. They were obtained in mid-August, with the exception of a few which emerged at intervals during September and October, 1900. Generally speaking the specimens were very dark, and the series was remarkable in that it contained but a few isolated examples of the forms which are prevalent in more eastern localities like Freshwater, Eastbourne, or Folkestone. The hind-wings of all the specimens were dark, while, in the majority, the black markings of the fore-wings were much intensified and increased in number, and a few specimens were largely suffused with black. On the motion of Mr. H. J. Elwes, seconded by Mr. H. Goss, it was resolved that a Committee be appointed to consider the question of uniformity in nomenclature for the guidance of specialists contributing to the Victoria County Histories, and that the appointment of the Committee should rest with the Council of the Society. The following papers were read:—" *Cetoniidae* collected by Messrs. H. E. Andrewes and T. R. D. Bell in the Bombay Presidency, with Descriptions of the New Species," by O. E. Janson, and "A Supplementary Catalogue of British *Ichneumonidae*," by Claude Morley.

March 20th, 1901.—Mr. G. H. VERRALL, Vice-President, in the Chair.

Mr. Willoughby Gardner, F.L.S., Reform Club, Liverpool; Mr. F. Hopson, 16, Rosslyn Hill, N.W.; Dr. C. A. Ledoux, Grahamstown, South Africa; Mr. C. P. Pickett, Leyton, Essex; Mr. W. G. Smith, 164, Wells Road, Knowle, Bristol; Mr. G. A. Waterhouse, B.Sc., Sydney, New South Wales; Mr. H. H. Whyman, M.A., Montreal, Canada; and Mr. F. C. Woodforde, Market Drayton; were elected Fellows of the Society.

Mr. C. J. Watkins sent for exhibition a series of larch twigs illustrating the winter condition of *Coleophora laricella*, the special feature being the manner in which the cases of the larvæ assimilated in colour with the bark of the larch. Mr. G. B. Routledge exhibited a specimen of *Hydrilla palustris*, taken on the wing by Mr. J. E. Thwaytes when sugaring near Carlisle on June 10th, 1899. He said it was the first male taken in that district, and Mr. C. G. Barrett remarked that it was the most definitely marked specimen of any known, and that in the northern locality the lines on the wings seemed to be brought out with greater distinction than in the Fen Country and elsewhere. He also exhibited specimens of *Bembidium Schuppeli*, a rare beetle captured on the banks of the river Irthing. Mr. R. McLachlan, Trichopterous larva-cases of the form known as "*Helicopsyche*" from the Prony River, New Caledonia, sent to him by Mr. J. J. Walker, R.N. They were large and remarkable for the size of the individual sand-grains of which they were built up. These sand-grains, Mr. Walker informs him, were water-worn particles of the heavier minerals of the river bed, such as chrome, nickel, and iron ores. It is possible that similar cases were alluded to by Hagen in the Stett. Ento. Zeitung, 1864, p. 129, from the Munich Museum. Mr. G. T. Porritt, specimens of an almost black form of *Acronycta menyanthidis* from Skipwith Common, near Selby, and stated that the same form was also common on Strensall Common, near York. For comparison he also showed specimens from the moors near Huddersfield. The chief interest in the exhibit consisted in the fact that in both the districts where the melanic *menyanthidis* occurred, melanism was not a common feature; whereas in the Huddersfield district, where only the pale form of *menyanthidis* was taken, melanism was a conspicuous feature in many species, even in and close to the grounds where only the pale *menyanthidis* could be found. Mr. H. W. Andrews, a female specimen of *Amphidasys betularia*, with hind-wings aborted and scarcely developed, taken at Paul's Cray, Kent, in May, 1896. Mr. H. Rowland-Brown stated that he had seen it announced in the London newspapers that the County Council had appointed a committee of experts to enquire into the feasibility of stocking the London parks with butterflies, and encouraging those which already existed there. He said that according to the latest observations thirty-nine species of *Rhopalocera* were recorded within, roughly speaking, a ten mile metropolitan limit, but that of these he only knew of *Pieris rapæ*, *P. napi*, *Vanessa Atalanta*, *V. urticae*, and perhaps one or two others which could, strictly speaking, be said to inhabit the Metropolis itself. A discussion ensued on the subject, in which Mr. A. J. Chitty, Mr. McLachlan, Mr. G. H. Verrall, Mr. H. Goss, and Mr. F. Merrifield took part.—II. ROWLAND-BROWN and H. GOSS, *Hon. Secretaries*.

NOTES ON LEPIDOPTERA OBSERVED ON A VISIT TO THE
ENGADINE IN 1900.

BY T. A. CHAPMAN, M.D., F.Z.S., &c.

I took my excursion last summer to the Engadine, and had Mr. G. C. Champion as a *compagnon de voyage*. It resulted, of course, that *Coleoptera* did not take second place in our programme. The results, so far as I assisted, were some observations on several species of the genus *Orina*, which have been presented to the Entomological Society of London in a short paper.

The real object of our excursion was, of course, simply a ramble amongst the mountains, but as in the every day matter of a mere constitutional, there is necessarily also an ostensible object. This I found by proposing to search for *Erebia flavo-fasciata*, of which two specimens were each in a different year brought thence by Mr. Nicholson, of Lewes. "Somewhere near Pontresina" being the only available direction, we accordingly made our head-quarters first at Pontresina. I may say at once that we failed to find the butterfly, and equally failed, of course, with regard to any likely spot, to prove its absence. Our non-success was very probably due to want of activity and enterprise on my part. I comfort myself, however, with the belief that the weather had something to do with it. Our first week or ten days at Pontresina was spent in deploring the wintry character of the weather, cold, wet, snowy, with snow several times to within 1000 feet of the village, so that any satisfactory excursions were impossible, either not attempted or cut short by bad weather. Afterwards it was probably rather late, at any rate little could be done during the few days there were before it was certainly too late. The search for *E. flavo-fasciata* at Pontresina remains, therefore, for another season, either for us or more likely for some one else.

The weather at Pontresina was the more tantalising as we had come over the Albula on a magnificent day, seeing plenty of butterflies and not far from Tiefenkasten grand flights of the fine *Ascalaphus cocejus*.

Our dates were, first three weeks of July at Pontresina, last week at Guarda (above Schuls, at the mouth of the Val Tuoi).

Whenever the weather was fine, and we had a fair share during the latter part of our stay, the feature of the excursion was for me the profusion of certain butterflies that for some years I had only seen sparingly. Not that any of them were rarities, but it was certainly pleasant to see them in such numbers. Foremost of these

perhaps was *Pieris Cullidice*, which was plentiful in many places, at the summit of the Albula, and about the Bernina Hospice and neighbouring valleys especially. I fancy from hearing similar accounts of the species from other districts that it was this season really more abundant than usual. The same remark may apply to *Lycæna Pheretes* and *orbitulus*, that simply swarmed in portions of the Bernina Valley, in the Heuthal, and elsewhere, as well as in the Tuoi Valley at Guarda. *Colias Palæno* I never saw in such numbers, it was perhaps most abundant on the slopes of what is called Muottas Pontresina. Here are thousands of acres of *Vaccinium uliginosum*, and a dozen or two of *C. Palæno* would often be in view at once.

Erebia Gorge was also extremely abundant, especially on the way up to the Piz Languard and beyond the Hospice on the way to the Alp Grum. The form at Pontresina was *triopes*, other varieties being rare. At Guarda, where it was also common, the type prevailed, one or two *triopes* and *Erynis* being however noticed.

Colias Phicomone was much less abundant than *C. Palæno*; it was frequent everywhere, but was only abundant in a mountain pasture between Pontresina and St. Moritz. I am not prepared to be positive that I saw either *C. Hyale* or *C. Edusa*. I brought neither back with me.

Parnassius Delius was locally abundant in one or two spots in the Bernina Valley, and was especially common on the upper marshy pastures of the Val Tuoi. *P. Apollo* was frequent, but abundant in the immediate proximity of Guarda.

The *Melitææ* were represented in great force by *M. Merope*, and in the upper regions of the Val Tuoi and in the Heuthal by an abundance of a form that is, I suppose, *M. Parthenie*. These were remarkable for the great variety in the markings of the upper-side, hardly two specimens being quite alike. The females very dark, with the ante-marginal row of rusty spots less obscured than the others, so that they much resemble *M. Asteria*, which also occurred on the same ground.

M. Phæbe, *Dictynna*, and *Athalia* were more or less common, especially on the lower ground near Guarda, and could always be discriminated from each other. *M. Cynthia* was abundant at the higher levels everywhere, and *didyma* abounded at Guarda.

The *Argynnes* were more frequently seen than captured. *A. Pales* was often abundant, and the profusion of *A. Aglaia* and *Eris* at the mouth of the Val Tuoi and in many other places was most exhilarating if not profitable. *A. Amathusia* was frequent, though not

fully out when we left. *A. Ino* was frequent on the openings in the woods opposite Guarda, where an odd *A. Thore* was taken; this was more abundant in the steep hanging wood through which the path goes from Pontresina to the Muottas Pontresina. It was here that we met with *Orina vittigera* so abundantly. *A. Euphrosyne* was still on the wing at Guarda, and *A. Lathonia*, without being in profusion, was fairly common at all places visited except the higher levels.

Grapta C-album and other *Vanessæ* were seen at Guarda, with *H. Semele*, *Janira*, and *Mæra*.

The *Lycænids* always command one's attention, but we met with nothing of note. *L. Pheretes* and *orbitulus* were the blues of our trip, being in profusion in the Heuthal and the Val Tuoi, and common almost everywhere. *Eros* was often by no means a bad third. *Ægon*, *semiargus* and *minima* made up the list of blues that were "common everywhere." *Eumedon* was frequent, but nowhere common. *Optilete* was common where *Vaccinium uliginosum* abounded, especially on the Muottas Pontresina. *Arion* was frequent, and common in places near Guarda. *Damon*, *Icarus*, *Corydon* and *Argus* were common at Guarda, and *Astrarche* was frequent at Pontresina. *Hylas* was less abundant, and only an odd specimen each was captured of *baton* and *bellargus*. *Escheri* occurred at Pontresina, and a large form of *Alcon* with wide border was met with at Guarda. At the latter station a specimen was taken that is possibly a variety of *Amanda*, but strongly suggests itself to be a hybrid *Corydon* × *Hylas*. "Coppers" were not successfully exploited, *Gordius* and *virgaureæ* making up the tale.

The *Erebiæ* met with included *Melampus*, common everywhere; *Gorge*, already alluded to; *Epiphron*, nowhere common, perhaps hardly fully out; *lappona*, *Muestra*, frequent, both at Pontresina and Guarda. A feature of the upper slopes of the Val Tuoi was the abundance of *E. Pharte* and *E. Manto*, unfortunately beginning to get worn. What was specially noticeable was the parallelism of variation of the two forms. In neither species were there any specimens so fully and brilliantly marked as those taken a few years ago at St. Anton and in Carinthia, though a few approached it. On the other hand there were all gradations, in *Manto* from this form to the var. *Cæcilia*, which was frequent, and in *Pharte* a similar range to specimens almost without markings, but not one, I think, absolutely without a trace of rusty mark on upper wing. A few *Stygne* and *Medusa* were seen, and *Tyndarus* was often in great force. We were too early for *glacialis* at Pontresina, but it was taken on the ridges above Val Tuoi; the few taken included the dark and pale forms, including one

var. *Pluto*. *Goante* was seen at Guarda, where also *Ceto* and *Medusa* appeared to be nearly over. *Æthiops*, a fine large form, was just coming out, and *Ligea* at the lower levels, and *Euryale* higher up was fairly common—a total of fifteen species.

Cænonympha Satyrion was common at all stations. *Pamphilus*, much rarer, one brought home measures 1.35 inch in expanse. The “skippers” were chiefly forms of what I take to be *H. fritillum*, some very finely marked, others with spots all but obsolete. *S. Sao* also occurred, with *T. Tages*, *P. linea* and *syllvanus*.

The *Zyggenidæ* were nowhere in force and presented nothing noteworthy.

Nemophila plantaginis was common, especially in the upper Val Tuoi, in considerable variety, but still each variety fairly distinct from the others and not shading into one another, as I think I have more commonly seen it. A yellow form = type; a white form with upper wings tinted = *hospita*; a very black form pale area as in type = *maternalis*?; similarly dark, but pale areas, as in *hospita* = *elegans*.

A very large form (over 1.5 inch) of *Lithosia lurideola* was common at Guarda, usually at rest on leaves of *Asclepias*.

On the same area of the Val Tuoi that afforded *Erebia Pharte* and *Manto*, *Plusia Hochenwarthi* was very abundant, as it was also in the Val Roseg at Pontresina. Along with it were immense numbers of *Agrotis ocellina* flying in the sunshine, and settling often several together on the flowers, especially of *Arnica*. Along with it and with similar habits was a species allied to *Hydræcia nictitans*, which I take to be *Mythimna imbecilla*. This much resembled *H. nictitans* in its habit of frequenting flowers, but was even more ready to fly in the sunshine; the male is not very like *H. nictitans*, but the female has a very similar facies. These two species were also fairly common in the Heuthal and other places near Pontresina.

Anarta melanopa was frequently seen in the higher regions, though catching it was a different matter. It was especially abundant on the Fuorela da Surlej. Amongst the *Noctuæ* seen the following were taken: *A. segetum*, *candelisequa*, *H. dentina*, *glauca*, *L. conigera*, *P. gamma*, *bractea* (near the mill at Guarda), *H. cæsia*, *A. euphorbiæ*, *O. cymbalaris*.

I have handed over to Mr. Prout the *Geometræ* taken, and he will report if there is anything worth reporting on.

The *Endrosas* (*Philea*, *Setina*) taken included *roseida*, which was very abundant in its old locality in the main Bernina Valley near the entrance to the Heuthal. It occurred again on open ground rather

high up in the Tuoi Valley; a search for the ♀ was unsuccessful. This species has all the aspect of being very definite and distinct from the others, and affects rather swampy flats, so that its food-plants and habits must be rather different from those of the allied forms, whose larvæ one so frequently meets with on and under dry lichen-covered stones. At Ardetz, a village some few miles down the valley from Guarda, an *Endrosa* was found abundantly in the village, sitting on the usually white-washed walls of the houses, females being in about the same numbers as the males. When I say an *Endrosa* I desire to leave it unsettled whether all were one species or whether there were several. One ♂ appeared to be almost certainly *irrorella*. The bulk were of a radiate form I should usually call *aurita*, but these shaded off into a fine large form of deep orange colour, and with more orange on the abdomen than *aurita* is supposed to be entitled to. These were not radiated, but with large blurred spots, and if not *Kuhlweini* are certainly a somewhat near approach to that form. Then there are two neat little specimens, ♂ and ♀, that resemble *roscida* in size, but are radiate in markings. These specimens altogether increase my impression that *irrorella*, *aurita* and *Kuhlweini* are not yet fully differentiated as species, and often present forms difficult to locate between them. Indeed, I believe *aurita* and *Kuhlweini* to be one species. *Irrorella* can usually be easily distinguished.

Larvæ of *Plusia moneta* were common near St. Moritz, and that of *P. illustris* was met with in the Val Roseg. In the Muottas Wood at Pontresina the rhododendrons were devastated by the larvæ of *Larentia cæsiata*, and larvæ of *L. verberata* were taken on *Campanula rotundifolia*, and those of *Oporabia dilutata* were common, especially affecting the honey-suckle.

We met with the larva of an *Epichnopteryx*, probably *pulla* or one of its varieties, in great abundance at one or two spots. One was on the woodland or mountain road from Pontresina to St. Moritz, or rather there were several spots along this road; another was close to the marshy flat in the Bernina Valley near the entrance of the Heuthal, where *Endrosa roscida* is taken, and where also a *Tortrix* with much the facies of *viburnana* abounded. The date was about the middle of July, yet a number of cases were affixed to the grass stems as if for pupation. This was probably, however, for moulting, since not one emerged, and in the course of a week or ten days all these were on the move again; the cases were very similar to those of full-grown males. Amongst the roots of the herbage and on the ground at these places the cases were very abundant, so much so that

two or three could often be picked up at once between the thumb and finger. They were of various sizes, some that of very small males, others of very large females (supposing them to be full grown). There were also younger cases, and these were of a somewhat different character. The adult case generally has a flat grass or carex blade (or several) on each side brought together at the narrow end so that that end finishes by a flat edge instead of a dome or point. These younger cases, about half the length of the larger ones, were without flat grass blades, proportionately thicker, round, and terminating rather rapidly in a pointed end; they were clothed with small material somewhat roughly put on, standing out a little, so as to contrast with the smooth grass blades of the finished cases.

The food of these seemed to be largely not the green growing herbage, but the damp, half rotten, dead, brown material that thickly covered the ground and was derived from the plants of previous years; in the first stage, in fact, of change to humus or peat. Several times the young half-grown larvæ with the rough cases were found, often several together, eating into and forming cavities in portions of old weathered cowdung, that consisted of slowly decaying vegetable fibre, much like the peaty stuff covering the ground, and that had long lost all its primary aspect of mammalian excrement. I came to the conclusion that these creatures must emerge early in the year. What would be early at some 6000 ft. elevation I do not know, but I was somewhat surprised at being unable to meet with any of the empty sacs and pupa cases left by the moths that could not have come out very long before our date. In captivity the larvæ were very promiscuous feeders, eating many varieties of plants; the flowers of *Lotus corniculatus* seemed to please them most. A number of them died, and I have not much hope of seeing many emergences next spring.

Several larvæ of *Melasma ciliaris* were taken in the Henthall, two of which were found eating the leaves and stems of the little black scented *Orchis* (*Nigritella angustifolia?*), and they ate this voraciously in captivity.

A larva of an *Eriocrania* was met with in the leaves of *Alnus incana*, and was especially abundant along the pathway bordering the lake at St. Moritz. I suspect it may be one of our birch species varying its food-plant, but the point is interesting.

Micro-Lepidoptera were not vigorously pursued, nor am I very sure of their names. We were rather interested in a black *Tinea* with yellow head, that proves to be *Tinea Rosenbergerella*, that we found running actively about the bark and dead wood of a large pine tree

in which a strong nest of large ants was housed. We had no proof of it, but imagined the moths were associated with the ants rather than with merely the rotting wood of the tree.

We returned home by the Fluela Pass and spent one day at Davos. So far as our brief experience went we thought it a much more desirable place for a stay than we had expected—expectations founded on a tramp through it many years ago, and the general idea that it was a winter sanatorium simply. We went to the top of the Dischma Thal, separated from the top of the Fluela Pass by a comparatively narrow ridge, of which the Schwarzhorn is the principal point. At the entrance of the valley we found *Argynnis Ino* in profusion, further up we saw *Erebia Stygne*; *E. Gorge* was fairly common, and *Mnestra* occurred very freely; *Tyndarus* and *Melampus* were veritable pests, rising from the road in swarms as we went along; *Euryale* was fairly common; further up *Argynnis Pales* and *Amathusia* were common, and a large form of *M. Merope*, almost *aurinia*, was frequent. Towards Durrenboden *C. Palæno*, *P. Delius* and *Erebia Epiphron* were flying freely. *Lycæna Alciphron* and *Gordius* were frequent, *P. Optilete* was common, and *Argus*, *Pheretes*, and several others were passed over as unworthy of attention.

Betula, Reigate: February, 1901.

ON SOME GEOMETRIDES FROM THE GRISONS COLLECTED BY
DR. T. A. CHAPMAN IN 1900.

BY LOUIS B. PROUT, F.E.S.

With his customary generosity, my good friend Dr. Chapman has presented me with the collection of Geometrides which he made in Switzerland in July and early August of last year, and the following note is the result of my investigation of them.

Pontresina and Guarda were made head-quarters, and collecting done often several miles off, up or down. The elevation of both centres is about 5500 ft.; collecting was done for the most part at higher levels, generally about 7000 ft., but of course there were many exceptions.

From Pontresina, July 1st to 21st, came the following 32 species, representing eight of the "genera" of Standinger's "Catalog," just half the species belonging to his comprehensive genus "*Cidaria*"—so well represented in northern and alpine localities.

(**Acidalia* =) *Pycetis flavcolaria*, Hb.—Three examples, normal.

(**Acidalia* =) *Cupnoclathria* (Warren, MS.) *immorata*, L.—Two; they are in fine condition, and rather dark specimens, approaching var. *tesselaria*, H.-S.

(**Acidalia* =) *Leptomeris fumata*, Stph.—Three.

(*Gnophos* =) *Sciadion sordaria*, Thnb., var. *mendicaria*, H.-S.—Two ♂, one ♀. This is, I believe, quite a usual variety in Switzerland.

(*G.* =) *S. glaucinaria*, Hb.—One ♂ only of this interesting and variable species.

Psodos coracina, Esp.—One ♂, two ♀, the latter rather sharply marked, even for this sex, in which of course one expects to find a great difference from the comparatively unicolorous males.

Ps. trepidaria, Hb.—Four ♂, one ♀, agree with Fusio and Macugnaga forms, which I have also had from Dr. Chapman.

Ps. alpinata, Sc. (*horridaria*, Schiff.).—Twelve only, two being females.

Ps. quadrifaria, Sulz.—Seven ♂, one ♀.

Pygmaena fusca, Thnb.—Seven ♂.

Ematurga atomaria, L.—One ♂, normal form, fairly large.

(*Cleogene* =) *Crocota lutearia*, Fb.—One ♂.

Minoa murinata, Sc., var. *cineraria*, Stgr.—Large, rather dark specimen; the only other *murinata* which Dr. Chapman has brought me, namely two examples from Fusio, belong to the same var., but are a great deal smaller (hardly quite as large as our average English form), and not quite so dark.

(*Cidaria* =) *Thera variata*, Schiff.—Three ♂, interesting dark form, with not much brown tinge, outer margin suffused, subterminal line nearly obliterated; one of the three particularly dark, yet not at all resembling our Scotch *obeliscata*, var. *obliterata*, White. I am rather inclined to believe that Doubleday was right in holding our British *obeliscata* to be a species distinct from *variata*, although my friend Mr. F. N. Pierce, to whom I submitted specimens some time ago, finds no appreciable difference in the ♂ genitalia.

(*C.* =) *T. cognata*, Thnb. (*simulata*, Hb.).—Larva on juniper, Heuthal, a valley 1200 or 1500 feet above Pontresina. The two specimens bred are larger, and of a rather greyer-brown than the British form, but indistinguishable from that from Gratz.

(*Cidaria* =) ? *Amœbe turbata*, Hb.—♂ and ♀, showing considerable differences in the fore-wings.

(*Cidaria* =) ? *Malenydris salicata*, Hb.—Three, about the same form as from Fusio, &c.

(*C.* =) ? *M. incursata*, Hb.—Two ♂, one ♀, large, the ♀ sharply marked, with narrow central fascia having a sharp prong posteriorly.

(*Cidaria* =) *Xanthorhoe montanata*, Schiff.—Five, one being the interesting ab. *fuscomarginata*, Stgr., the others pretty normal.

(*Cidaria* =) *Glaucopteryx cæsiata*, Schiff.—Three, varying, but not abnormally. I also bred a series from larvæ which Dr. Chapman found feeding on rhododendron earlier in the season.

(*Cidaria* =) *G. incultaria*, H.-S.—Two, worn.

(*Cidaria*) *verberata*, Sc.—One bred specimen, with rather interesting history. Dr. Chapman found three larvæ together on *Campanula rotundifolia*, on which they fed well. The species is reputed to feed on *Conifereæ*, but Dr. Chapman thinks, from the very great frequency of the moth in various localities, that it is a general feeder.

(*Cidaria*) *alpicolaria*, H.-S.—One, in good condition. This is by no means a common species, and the present is the first specimen which Dr. Chapman has brought me; it was first described from the Austrian Alps, but Pontresina is apparently not a new locality for it; I had two previous examples from the same place, among some Geometrids received from Heyne.

(*Cidaria* =) *Ochyria spadicearia*, Schiff.—One ♂, rather dark and glossy, reminding one somewhat, by artificial light, of *Epirrhoë alternata*, Müll. (*Mcianippe sociata*, Bkh.).

(*Cidaria* =) ? *Rheumaptera luctuata*, Schiff. (*lugubrata*, Stgr.).—One fine large example; it is in perfectly fresh condition, though Frey gives May and June as its period.

(*Cidaria* =) *Epirrhoë tristata*, L.—One, pretty normal.

(*Cidaria* =) *Perizoma alchemillata*, L.—Two, differing much in size.

(*C.* =) *P. blandiata*, Schiff. (*adaequata*, Bkh.).—Five, not variable.

(*C.* =) *P. minorata*, Tr.—Five, not variable. Smaller and darker than specimens I have from Tyrol, Engadine (? at lower altitude), &c., therefore nearer the Scotch form.

Eupithecia satyrata, Hb. ?—One peculiar whitish-grey specimen, with rather pointed wings; unless it be an aberration of this species I am unable to locate it.

E. tamarisciata, Frr.—One only.

E. scriptaria, H.-S.—Three, variable, but agree very well with the three which I have from Fusio. I believe this prominent little *Eupithecia* is largely alpine in its habitats.

From Guarda, July 22nd to 31st, there were 24 species, embraced in 10 Staudingerian genera.

Seven of the species, viz., *P. flaveolaria*, *S. sordaria*, *Psodos*, four species, and *U. verberata*, duplicate species met with at Pontresina, and only one of these calls for special remark: (*Gnophos* =) *Sciadion sordaria*, Thnb.—One specimen only, so utterly different from the var. *mendicaria* from Pontresina that I did not at first recognise it as the same species. It is a fine, bright, sharply-marked ♀, surpassing in colour Zeller's best example, which is from Raibl.

The rest of the species were:—(**Acidalia* =) *Pyctis trilincata*, Scop. (*aureolaria*, Schiff.).—One specimen. This pretty little relative of *P. flaveolaria*, Hb., comes so near it in build, &c., that Dr. Chapman took it to be a striking var. thereof, with strongly expressed transverse lines. I know nothing of the early stages of either species, but I am not aware of any grounds for challenging their specific right.

(**Acidalia* =) ? *Emmiltis perochraria*, F. R.—Two specimens.

(**Acidalia* =) *Ptychopoda inornata*, Haw.—One specimen.

(**Acidalia* =) *Leptomeris incanata*, L.—One example.

(*Gnophos* =) *Sciadion obfuscaria*, Hb.—Five ♂, three ♀, large and somewhat variable, about the same range of variation as in a Perth series, but on the average larger in size. On the whole nearer the dark var. *canaria* than the type.

(*Dasydia* =) *Orphne tenebraria*, Esp.—Two ♂, two ♀, typical.

(*Thaunmonoma* =) *Itame variaria*, L.—One, normal.

(*Ortholitha* =) *Pterocymia bipunctaria*, Schiff.—Two ♀, rather darkly marked, but without the darkened ground colour of ab. *gachtaria*, Frr.

Carsia paludata, Thnb., var. *imbutata*, Hb.—One, considerably larger than our English form, but the differences do not otherwise strike me as being at all manifest. There is, at any rate, no tendency to approach the Scandinavian type.

(*Lygris* =) *Eustroma populata*, L.—One ♂.

(*Cidaria* =) *Amœbe aptata*, Hb.—One ♂.

(*Cidaria* =) *Xanthorhoë fluctuata*, L.—One, pretty typical.

(*Cidaria*) *verberata*, Sc.—One.

(*C.*) *frustata*, Tr.—Two, worn (going "over?").

(*Cidaria* =) *Epirrhoë galiata*, Schiff.—One, rather interesting form, somewhat resembling the ab. *chalybeata*, of Hübner, but the yellowish tinge in the ground colour not quite so strong.

(*Cidaria* =) *Perizoma niveata*, Stph. (**albulata*, Schiff.).—Two, of the usual continental type.

(*Cidaria* =) *Anticlea berberata*, Schiff.—One.

In order to complete the lists, I ought to mention one specimen of *Hydriomena furcata*, Thnb. (*Cidaria sordidata*, Fb.), from Davos, August 2nd; it is of the ordinary greenish form.

These samples seem sufficiently to indicate that the localities named could very profitably be further worked for many of the alpine and sub-alpine species; they have made a very interesting and very substantial addition to my collection thereof, and the comparison of material from different localities is always a pleasant and profitable line of study.

246, Richmond Road, Dalston, N.E.:

May, 1901.

HERMAPHRODITE HAWAIIAN *ODYNERUS*.

BY R. C. L. PERKINS, B.A.

Amongst a fine series of a probably new Hawaiian *Odynerus*, recently captured, one example proved to be a very well marked hermaphrodite. In the main the left half of this insect is ♂, both in colour and structure, the right ♀, but ♂ characters partly extend on to the latter half.

CHARACTERS OF COLORATION.

LEFT SIDE.

Scape of antenna with a yellow spot
(♂ char.).

RIGHT SIDE.

Scape entirely black (♀ char.).

Clypeus yellow to middle line (♂ char.).
Front tibia yellow above (♂ char.).

Clypeus black to middle line (♀ char.).
Front tibia black, with two very minute yellow dots (char. of some females which often have the tibia entirely black).

Middle and hind tibiae yellow above (♂ char.).

Middle and hind tibiae with yellow lines above, but less yellow than on the left side (♂ char., the ♀ always having these parts black).

CHARACTERS OF STRUCTURE.

Mandible small, of normal ♂ structure.

Mandible very large, of normal ♀ structure.

Antenna 13-jointed, the two terminal ones much modified to form a hook; scape short (normal ♂ antenna).

Antenna with twelve simple joints, the scape one-third longer than on the left side (normal ♀ antenna).

Front tarsi a little more slender (♂ char.).

Front tarsi a little wider (♀ char.).

Abdomen with seven dorsal segments (♂ char.).

Sting normal, well developed (♀ char.).

The development of a seventh dorsal segment (the ♀ having but six) in conjunction with the perfect development of the indrawn ♀ segments, which form the sting, is a remarkable character. This seventh segment is not fully developed, but is asymmetrical, and pointed, as if cut out of the normal ♂ segment; and it is curious that it is formed as if the left side had been cut away, since it is the left half of the insect which exhibits all the ♂ structural characters. Of the ♂ indrawn segments forming the genital armature there was no trace at all, nor yet of the testes, vesiculæ, or ducts. The ovaries, if present at all, were much less developed than is usual in mature *Hymenoptera*, as I failed to find these, but the poison gland was abnormally largely developed. Owing to the fact that the specimen had been dead two days before it was examined, the study of the soft parts was difficult and unsatisfactory. Hermaphrodite Aculeates are certainly very rarely met with. During the past fifteen years I have caught and examined not less than 20,000 examples of this group, but only once previously met with an instance, the hermaphrodite ant, *Stenamma Westwoodi*, described by me in this Magazine (Ent. Mo. Mag., xxvii, p. 123).

Honolulu, H. I.:

February, 1901.

HERMAPHRODITE SPECIMEN OF *PODALIRIUS RETUSUS*, L.

BY THE REV. F. D. MORICE, M.A., F.E.S.

The recent work of v. Dalla Torre and Friese on "Hermaphrodite and Gynandromorphous Hymenoptera" (Innsbruck, 1899) contains 75 quoted and 5 new instances of this phenomenon. Two of these (viz., "45—*Anthophora retusa*, L.," and "46—*Anthophora acervorum*, L.") are derived from notices by Smith and Shuckard, and these seem to be the only cases yet recorded of hermaphroditism in the genus *Anthophora*, or, as it seems we should call it, *Podalirius*.

At a Meeting of the Entomological Society of London in October last I exhibited a very curious hermaphrodite specimen of *Podalirius* (= *Anthophora*) *retusus*, L., which I had captured on April 26th, 1900, at Ottershaw, between Woking and Chertsey. The characters of the two sexes are blended in it after a somewhat intricate fashion, which it may be worth while to record in detail, as it differs a good deal from that described in the specimens above mentioned. I give also camera-lucida sketches of the genitalia, which as will be seen are very curious. The other characters of the insect I do not figure, as I hope to convey a sufficient idea of them by simple description.

The general external aspect of this insect is that of a female, but it has the following male characters:—

Head.—Left half of labrum, and left half of clypeus towards its apex, yellow, and clothed with silvery hairs. A fulvous tuft between the ocelli and the insertion of the left antenna, and a paler tuft below it (at the base of the clypeus), left half of the head clothed posteriorly above with fulvous hairs, below, and along the mandible (posteriorly) with white.

Thorax, &c.—Region surrounding the right tegula clothed with fulvous hairs. Right intermediate leg with dilated and flabellated metatarsus (the character rather less developed than in a normal ♂).

Abdomen.—Right half (nearly) of 2nd dorsal segment clothed with fulvous hairs and with a paler apical fascia. A less distinct pale fascia on the following segment.

Genitalia.—One stipes and one sagitta only present—the left (fig. 2). The right half of the armature appears to be ♀, consisting of a distorted aculeus and its sheath (fig. 1).



Fig. 1.



Fig. 2.

I can only find six exposed dorsal and ventral segments on either side. The 5th dorsal has a singular appearance, its apex being densely pilose on the left (♀) side and nearly naked on the other. The 6th dorsal bears the usual pygidial field. The 6th ventral seems to be divided longitudinally into two lobes, the right

(♂) being impunctate and shining towards its base, the left (♀) punctured all over. The apices of these two lobes are separated by a triangular incision. That on the right side is widely pale and membranous externally; that on the left seems to be of one consistency throughout, and to have an apical fimbria of dense hairs which is wanting in the other.

In extracting the genitalia I found vestiges of, as I believe, three concealed ♂ segments, viz. :—

(1) An apical dorsal segment, apparently identical in form with that of the concealed (8th) dorsal in an ordinary ♂ of the species.

(2) The right half only of a 7th ventral, so distorted and stunted as to be hardly recognisable, except by careful comparison with the corresponding part in an ordinary male.

(3) The right half only of an 8th ventral. This (except that it is a half only) seems normally constructed, and, I think, can be identified without doubt or difficulty. The antennæ are both ♀, twelve jointed, and with black scapes. The legs also, except the right intermediate one, seem to be ♀, and the posterior pair are certainly such, with well developed scopæ of normal form and colour.

Thus, summing what has been said more briefly, the ♂ characters in this specimen are confined to the *left* side in the head and genitalia, and to the *right* side in the thorax, legs and abdominal segments. In the genitalia and in the head (except as to the antennæ) male and female elements seem pretty equally balanced, and the same may perhaps be said of the abdomen if we take into account both external and internal characters. But in the thorax and legs the ♀ element very greatly preponderates. And wherever the same character appears on both sides of the specimen alike (*e. g.*, the antennæ, the scopæ, and the black pilosity on certain segments) that character is always ♀.

The insect when taken seemed healthy and vigorous. It was visiting flowers of some labiate plant, if I remember right, *Nepeta glechoma*, and its flight was just that of an ordinary female. Its curious parti-coloured face caught my eye, otherwise I should have let it pass as a female, for the other characters were too inconspicuous to attract attention as it flew past me.

Brunswick, Woking :

March, 1901.

Note on Athalia spinarum.—The frequency and distribution of *Athalia spinarum* is of so great an economic interest that all who can throw light on the subject should contribute. Specimens were so abundant on the coast of Suffolk in July, 1859, that they were mistaken for shimmering heat (*cf.* Ent. Ann., 1860, p. 91). Mr. W. H. Tuck took a number at Southwold in September, 1899 (*cf.* Trans. Norf. Nat. Soc., vii, p. 14). I have collected eight years in Suffolk and did not meet with it till 1900, when it occurred singly on *Angelica sylvestris* flowers in Tuddenham Fen and at Lackford Bridge in August.—CLAUDE MORLEY, Ipswich : May 1st, 1901.

THE TYPES OF HEER'S FAUNA COLEOPTERORUM HELVETICA.

BY D. SHARP, M.A., M.B., F.R.S., &c.

In 1841 the late Professor O. Heer published a volume called "Fauna Colcopterorum helvetica." This extended to the first half of the *Coleoptera*, and the work was never completed, no second volume having been added. Many new species were described, and the novelties were chiefly in the more difficult groups. Heer's species have never been thoroughly elucidated; some of them still stand in the European catalogues as mere names.

In the middle part of the nineteenth century M. de Laporte Comte de Castelnau, formed by purchase, exchange, &c., a very large collection of *Coleoptera*, and on leaving France for Australia he took this collection with him. He died about thirty years ago, and his collections were then sent back to France to be sold and were entrusted to the well-known French entomological agent, M. Henri Deyrolle. I went to Paris to see these collections, and purchased the *Staphylinidæ* and *Hydrophilidæ*. Included in my purchase there was a considerable number of specimens which M. Deyrolle assured me were the types of Heer's "Fauna helvetica." I have recently had several enquiries addressed to me about these types and the degree of authenticity that attaches to them, and I think it desirable to give what information I can about them.

I learned, I think from M. Deyrolle, that Castelnau obtained these specimens by the purchase of the collection of M. Chevrier, of Geneva. Evidently Castelnau attached considerable importance to these specimens. They were nearly all gummed on cards, and had been floated off and gummed on to these cards by Castelnau. On the pin of each card was a label written in the straggling handwriting of Castelnau of the following nature, "*planiuscula*, Heer, Genève." The name of the genus was not mentioned on the label, but was left to be inferred from the situation of the specimens in the collection.

In old days entomologists did not label their types as such, and I have no means of knowing whether these "types" are the actual specimens described by Heer. I have, however, no doubt that the specimens formed part of the collection of Chevrier as I was informed by M. Deyrolle. Heer commences his descriptions of new species by writing sometimes "*O. litigiosa*, Chevrier," sometimes "*O. litigiosa*, mihi." The Chevrierian species are mostly said by Heer to be "*Genf. rarissime*." Evidently Heer did not himself possess these Chevrierian species, and it is highly probable that the specimens of

them in the Castelnau collection are actually Heer's types, in the modern and the only correct sense of the word type.

The series of Swiss things remounted by Castelnau and labelled by him are, however, far from being only the species that Heer specially assigned to Chevrier. The series includes, in fact, nearly a full set of the new species described by Heer, and, moreover, is confined to Heer's new species. Whether the specimens of the non-Chevrierian species were obtained by Chevrier from Heer, or whether they were named by Heer, or whether Chevrier named them himself, I have not the slightest idea. It is doubtful whether any one can give further information on this subject, but perhaps some one can tell us what came to Heer's own collection of *Coleoptera*.

I have previously stated that Castelnau remounted these specimens, and I regret that I must add that he did so very badly indeed, and that as a consequence it is necessary to again relax them and take them off the cards before they can be, in many cases, satisfactorily determined. This I have done in the case of a number of the species, and have labelled them "supposed types of Heer's —."

The families of Castelnau's collections purchased by me were *Staphylinidæ*, *Hydrophilidæ*, *Heteroceridæ* and *Georyssidæ*. The *Carabidæ* and *Dytiscidæ* were purchased by Mr. Edwin Brown; the *Dytiscidæ* being subsequently acquired from him by me, and the *Carabidæ* being dispersed at the sale of Mr. Brown's collections. The *Pselaphidæ* were, I believe, acquired by M. Raffray (through Schaufuss?), and the *Lamellicornia* by M. van Lansberg. Many of Heer's species have been determined from the descriptions to be only synonyms for previously known species. Most of the published determinations of this kind are, according to these "supposed types," correct, and this, of course, adds to the probability that the "supposed types," are the real types.

Cambridge : January 26th, 1901.

SOME CRITICAL REMARKS ON VARIOUS SPECIES OF *BRUCHUS*.

BY G. C. CHAMPION, F.Z.S.

B. luteicornis, Ill. (1794), is the male of *B. rufipes*, Herbst (1783) (= *nubilus*, Boh.), and Illiger's name must be sunk as a synonym. The colour of the antennæ and of the anterior and intermediate legs in this insect is very variable, but the females always have at least the six outer antennal joints black, and the males usually have the antennæ entirely rufo-testaceous. In both sexes the four

anterior legs and the antennæ are occasionally almost entirely black ; the tendency, however, is always for the male to have these parts more lightly coloured than the female. The males may easily be identified by the slightly curved intermediate tibiæ, which are sinuous on the inner edge and sharply bidentate at the inner apical angle. In the series of specimens captured by myself at different times at Claygate and Ashted, Surrey, there are all the gradations in the colour of the legs and antennæ. Dr. Power's examples of *B. rufipes* from "Surbiton" were also no doubt from Claygate. The only other British localities from which I possess specimens are Guildford and Hastings.

B. viciæ, Oliv., recorded as having been taken by Dr. Power at Hurst and the Devil's Dyke, Brighton (whose specimens cannot now be found in the Power collection at the British Museum), and by myself on the chalk hills at Caterham, must be named *B. Fahræi*, Gyll., a variety of *B. atomarius*, Linn., from which it differs in the almost entirely black legs and antennæ. The two examples in my collection are both females, and were captured on May 30th, 1876. The males of *B. atomarius* differ from those of *B. rufipes* in having the intermediate tibiæ armed with a sharp tooth at some distance before the apex, and their inner apical angle acute. The true *B. viciæ* has the legs black, the thorax shorter than that of *B. atomarius*, and the intermediate tibiæ of the male bidentate at the apex; it differs from *B. rufipes* in its trapezoidal thorax. *B. viciæ* is a more southern insect than *B. atomarius*, var. *Fahræi*, and apparently does not occur in the north of France or in Britain; I have taken specimens of it at Vernet, in the Eastern Pyrenees.

The introduced *Bruchus* found by Messrs. Wilkinson and Lawson at Scarborough, and freely distributed by them under the name of *B. pectinicornis*, Linn., is *B. incarnatus*, Boh., recorded from Egypt, Spain, and Southern France. The true *B. pectinicornis*, also an introduced species, has, I believe, recently been found by Mr. E. A. Waterhouse near Putney, quite away from houses.

I am much indebted to M. Bedel, of Paris, for calling my attention to the incorrect identification, &c., of these insects by British Coleopterists, and also for examining some of my examples of the above-mentioned species.

The sexual variation of *B. rufipes* was observed by me years ago, but not recorded.

PERLIDÆ TAKEN IN NORWAY IN JUNE AND JULY, 1900, WITH
REMARKS ON CERTAIN ARCTIC FORMS.

BY KENNETH J. MORTON, F.E.S.

Referring to page 31 of the current volume, I now submit a list of *Perlidæ* taken in Norway in June and July of last year.

The *Perlidæ* of that country are by no means unknown. Schöyen seems to have collected them in some numbers and in many localities, but our recent information as to Norwegian *Perlidæ* is mainly the result of the extensive and energetic collecting of Herr Embr. Strand, whose materials have been worked out with care and accuracy in the *Verhandlungen der K. K. zool.-bot. Ges. in Wien*, 1900, by Dr. Peter Kempny, of Gutenstein.

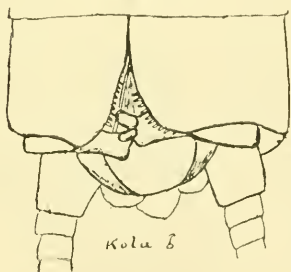
My own captures comprise four species not included in Dr. Kempny's list; and I was also fortunate enough to find two of his novelties. Some of the insects taken have suggested one or two points connected with species from other Arctic localities.

DICTYOPTERYX.

1. *compacta*, McL.

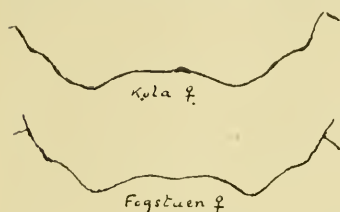
On the last day of our stay at Fokstuen, on the Dovrefjeld, by turning over stones at the rapid Foksaa, I found two examples of a micropterous ♂ *Dictyopteryx* (length of fore-wing, 12 mm.). The condition of the insects is teneral, and therefore not so satisfactory as is desirable with respect to colour, the characteristic markings of the head and pronotum being pale yellowish or whitish. On account of the somewhat unusual condition of the wings (micropterism being much less frequent in the ♀ than in the ♂ in *Perlidæ*) I was inclined to describe the insects as new under the name *dorrensis*. Further consideration of the subject leads me to doubt the prudence of this course; and I now believe that they represent a local form of the species which I received long ago from Dr. John Sahlberg from the Kola peninsula, and which Mr. McLachlan thought might be his *compacta*, an opinion I agreed with after having seen the types.

The Kola insect (♂ micropterous, while the typical ♂ has effective wings) has the lanceolate markings on the head much broader than is usual in *Dictyopteryx*. The colour of the adult markings is rich orange, which in the ♂ has a very decided tendency to cover the whole hind head, and to spread along the sutures and margins of the head and to the frons, which has a yellow triangle. In the ♀ this colour does not spread so much.



The anal parts of the Kola ♂ are very complicated, and I give a figure of them as seen from above. Seen from beneath the last ventral plate appears to be somewhat pointed, and this is accentuated as a rule in drying; further, in several examples the plate is continued by what appears to be a yellowish, hardened, upturned

process, which, however, is, I think, only a secretion (it is curious that it should assume the same position and form in more than one example). There is also sometimes visible a much exerted slender rod or sheath.



In the ♀, the egg-valve is excised on its exposed margin, leaving two prominent lobes on either side; the side margins are oblique, and also slightly excised, giving rise to minor lobes. These remarks are based on dried examples, prepared by boiling in caustic potash, and subsequently mounted in balsam.

In the Dovrefjeld ♀ (in formalin) the form of the egg-valve is practically the same, a slightly sharper outline being natural in a specimen that has never been dry at all. It should be kept in view that the excision of the egg-plate in this species is a real one, and not the result of a mere curving of the plate, which frequently arises in drying (see figures).

Should this species really prove different from *compacta*, the name *dovrensis* might be retained for it. I have little doubt the insect recorded at p. 30, Ent. Mo. Mag., 2nd ser., vol. x, is the same, although it has full wings.

ISOGENUS.

2. *nubecula*, Newman.—One ♀ from the Glommen at Saeterstoen appears to belong to the large form, which in the meantime must be regarded as Newman's species—quite different from the insect found so commonly about Scottish sub-alpine lakes (the name *I. rectus* has been proposed by Kempny for the latter insect). It is unfortunate that there should remain any doubt as to the true *nubecula* of Newman, which, he said, was abundant about running waters in Herefordshire, Worcestershire, Northamptonshire, &c. My efforts to obtain *IsoGENUS* from any of these districts have been unsuccessful, although I owe Dr. John H. Wood, of Tarrington, Ledbury, much for all the trouble he took to find the species without being able to do so.

3. *Nansenii*, Kempny.—Several females taken at the River Laagen, near Domaas. This species, which was not separated by me from the other forms when I examined a large collection sent from Finland by Sahlberg, is, I find, represented by examples from Utsjoki, Finnish Lapland. The ♂, as far as known, has effective wings.

CHLOROPERLA.

4. *grammatica*, Scop.—Lillehammer and Molde.

5. *Strandi*, Kempny.—Lillehammer and Lesjeverk.

6. *griseipennis*, Pictet.—Common on the Glommen at Saeterstoen. Certainly the same as the species recorded by Kempny. I have not been able to compare my specimens with moist material from the central parts of Europe.

ISOPTERYX.

7. *Burmeisteri*, Pictet.—Two examples from Domaas.

CAPNIA.

8. *nigra*, Pictet.—Domaas.

9. *atra*, Morton.—Fokstuen and Domaas; only ♀ of both species.

TÆNIOPTERYX.

10. *Risi*, Morton.—Domaas and Fokstuen, common.

LEUCTRA.

11. *albida*, Kempny.—Domaas (♀, a little doubtful).
 12. *hippopus*, Kempny.—Lesjeverk.

NEMOURA.

13. *variegata*, Ol.—In many localities.
 14. *avicularis*, Morton — ♀, Domaas (slightly doubtful).
 15. *cinerea*, Ol. (Morton).—Domaas.
 16. *borealis*, Morton.—Lillehammer, on the Mesna. I was very pleased to take this species; it is closely allied to *cinerea*, but very distinct.
 17. *inconspicua*, Pict. (Morton).—Domaas, Fokstuen, and Molde.

With reference to the term *cinerea*, two species at least have been confused under this name: one has a curious arrangement of spines on the appendages, while the other and more common form is devoid of these. I hope this matter will shortly receive full explanation from Dr. Ris, who is at present engaged with this genus. The Norwegian species taken by me is the form without the spines.

13, Blackford Road, Edinburgh:
 March 20th, 1901.

The Insects of Northamptonshire.—Since the publication of my “Notes on the Lepidoptera of Northamptonshire” (*ante*, pp. 58–62), I have looked through the collection of Mr. Wm. Hull, of Northampton. Mr. Hull has devoted himself, mainly, to the *Coleoptera*, and the species of that Order, which he has collected in the county, will be enumerated in the first volume for Northamptonshire, of “The Victoria Histories of the Counties of England.” In addition to the *Coleoptera* Mr. Hull appears to have collected, casually, near Northampton, species belonging to other Orders; and amongst the *Orthoptera* I noticed *Locusta viridissima*. The *Neuroptera* included, amongst other species, the following dragon-flies:—*Eschna cyanea*, *Libellula quadrimaculata*, *L. depressa*, *Calopteryx splendens*, *Sympetrum striolatum*, *Pyrhosoma nymphula*, *Agrion pulchellum*, and *A. puella*. The *Hymenoptera* were represented by, amongst many other species, *Bombus terrestris*, *B. lapidarius*, *Andrena fulva*, *Vespa vulgaris*, *V. crabro*, *Trichosoma lucorum*, and *Cimex femorata*. The *Diptera* were well represented, but I was only able to identify *Estrus boris*, *Tipula gigantea*, *Tachina grossa*, and *Volucella pellucens*. The *Hemiptera* included *Pentatoma baccarum*, *Tropicoris rufipes*, *Reduvius personatus*, and *Cercopis sanguinolenta*.

The collection was made within too limited an area, and is far too incomplete to be considered as representative of the Insect Fauna of the county; but as so little is known of the Insects of Northamptonshire—the *Coleoptera* and *Lepidoptera* excepted—it is thought that, possibly, the record of these few species may not be without interest to residents in, or visitors to, the county.—H. Goss, Surbiton Hill: April, 1901.

Note on a form of Vanessa urticae, L.—I have in my possession a somewhat interesting variety of the above insect, which I netted a few years back in a subur-

ban garden near Birmingham; I observed at the time that the specimen was not exactly typical, and it has only been quite recently that I have examined it more closely. Mr. G. T. Bethune-Baker suggested to me that it was probably the variety *polaris*,* and upon comparing it with specimens in his collection I found it agreed, fairly well with it. Mr. Barrett has subsequently informed me that he considers the true *polaris* (as defined by Kane) to be that form in which the wings are very dusky and the inner marginal spot completely joined by a black band to the costal one; my form has the dark borders to the wings more heavily pronounced than is usual, and the band between the inner marginal and costal spots merely represented by a dark tract of pigmental scales, which, however, are more prominently developed upon the inferior surface of the wings, and I think the insect may be looked upon as intermediate between the constant northern form *polaris* and the type. Mr. Barrett has also informed me that it is by no means an uncommon variety in Britain, and I thought it would be worth while recording it, so that perhaps in course of time some light might be thrown upon its distribution, if observers in different parts of the country would publish notes upon its occurrence in their own districts. I might suggest that the variety is perhaps the result of the larva having selected some unusual situation (damp or otherwise) wherein to pupate. An interesting figure for comparison is that named var. ii in Newman.—A. D. IMMS, Lindhurst, Oxford Road, Moseley, near Birmingham: April, 1901.

Melanism in Larentia multistrigaria.—Another Lepidopteron which seems to be rapidly becoming melanic in this district is *Larentia multistrigaria*. Some six years or so ago an odd black specimen occasionally occurred, and since then the form has been found in gradually increasing numbers. Last month, from the 18th to 24th, short searches on two or three evenings by Mr. W. Tunstall and myself in an old hilly meadow near this house produced about a dozen or more of the black form, representing perhaps twenty per cent. of the specimens seen. It should be added, however, that the form had occurred very long ago, because I distinctly remember the late Mr. James Varley, of this town, telling me, probably more than thirty years ago, that the late Mr. Henry Doubleday had written that he had bred a black *multistrigaria* from a batch of eggs he (Varley) had sent him. Probably the specimen still exists in the series in the Doubleday Collection in the Bethnal Green Museum.—GEO. T. PORRITT, Crosland Hall, near Huddersfield: May 13th, 1901.

Note on Metzneria littorella, Dgl.—The late S. Stevens' specimens of *Metzneria littorella* appear, from the pinholes in his cabinet, to have been six in number. Of these he gave one to me, one to Mr. Hodgkinson as correctly surmised by Mr. Banks, and a third (of which I do not know the present owner) to I think Mr. Vaughan, who, as he did not attend to *Tineina*, would naturally give it away to some one else. The remaining three were sold at Stevens' sale, and are now before me exactly as they stood in his cabinet. Had Mr. Banks' note been delayed any longer in publication I could not have told how many specimens Mr. Stevens actually possessed, but it just so happens to be the only drawer of his Micro cabinet

* Staudinger Cat., p. 16, 1871; also Stett. Ent. Zeit., 1861, p. 345.

which I have not as yet repapered. The original specimens were taken in April, 1848, and are so labelled.—SYDNEY WEBB, 22, Waterloo Crescent, Dover: *May 1st*, 1901.

Aculeate Hymenoptera at Tintagel, North Cornwall.—The following little list of Aculeates, taken at Tintagel, North Cornwall, last July, although devoid of rarities, may be of interest as an addition to the lists of captures at Newquay, published in former numbers of the Ent. Mo. Mag. Tintagel is a most charming spot, the hedgerows with their wealth of wild flowers and ferns are all that a lover of Nature can wish for, but the soil is too rocky to make it an ideal hunting ground for the Hymenopterist, as this list too plainly shows—the Neuropterist, on the other hand, would be well repaid by a visit—the delightful little streams which everywhere abound, with their marshy banks and valleys, being frequented by a greater variety of species than I had ever before seen in England.

Formica fusca, Linn. *Myrmica ruginodis*, Nyl., *scabrinodis*, Nyl. *Myrmica melanocephala*, Fab. *Pompilus gibbus*, Fab., *niger*, Fab., *spissus*, Schiödt. *Salix exaltatus*, Fab., *pusillus*, Schiödt. *Ceropales maculata*, Fab. *Tachytes pectinipes*, Linn. *Pemphredon Shuckardi*, Mor. *Crabro elongatulus*, v. d. L., *palmipes*, Linn., *cribrarius*, Linn. *Cerceris labiata*, Fab. *Gorytes tumidus*, Panz. *Colletes pici-stigma*, Thoms. *Prosopis hyalinata*, Smith. *Sphecodes subquadratus*, Smith. *Halictus leucozonius*, Sch., *cylindricus*, Fab., *Smeathmanellus*. *Andrena Gwynana*, Kirb., *fulvius*, Kirb., *coitana*, Kirb., *denticulatus*, Kirb. *Nomada solidaginis*, Panz., *Fabriciana*, Linn., *jacobææ*, Panz. *Megachile maritima*, Kirb., *centuncularis*, Linn. *Osmia fulviventris*, Panz. *Celioxys acuminata*, Nyl. *Stelis aterrima*, Panz. *Anthidium manicatum*, Fab. *Psithyrus campestris*, Panz. *Bombus Latreillellus*, Kirb. As usual, I am indebted to Mr. Edward Saunders for kindly identifying my captures.—G. A. JAMES ROTHNEY, Pembury, Tudor Road, Upper Norwood: *March 3rd*, 1901.

Tipulidæ in the West of Scotland: corrections.—*Amalopsis straminea*, Mg., p. 114, line 7 from bottom, should read—"A. sp. ? (I submitted^a this as *A. geniculata*, Mg., to Mr. Verrall, who says it stands in his collection as the probable *A. straminea* of Walker.)" The authority for *Dixa maculata* and *D. nebulosa* should read Mg., for *Limnobia bifasciata*, Schrk., and for *Rhyphotophus pentagonalis*, Lw. For *Dicranota parvula*, Hal., p. 114, line 10 from bottom, read *D. parvula*, Hal., and for *Pachyrrhina lunilicornis*, Schum., p. 115, line 5 from top, read *P. lunilicornis*, Schum.—ROBERT HENDERSON, 12, Armadale Street, Glasgow: *May 6th*, 1901.

Ceroplatus sesioides, Whlbg.: *correction of name.*—In vol. ix (second series), p. 276, of this Magazine, I recorded having taken two specimens of *Ceroplatus sesioides*, Whlbg., at Lyndhurst on July 17th, 1894, and September 3rd, 1898, respectively, and since the latter year have reported nine more captures in the same district; but on recently taking two specimens to Mr. Austen for the New Collection of British *Diptera*, he informed me he had now come to the conclusion the name must be altered to *C. tipuloides*, Fab.—FRED. C. ADAMS, 50, Ashley Gardens, S.W.: *May 3rd*, 1901.

Volucella zonaria, Poda, in the Channel Islands.—Amongst some insects brought back from Jersey last summer by Mr. J. T. Fountain, of Birmingham, was a fine specimen of this handsome species. The species is one of the largest and handsomest of the *Diptera* of the family of *Syrphidæ*, and it is interesting to find it in the Channel Islands, because, although not regarded as British, yet it was at one time regarded as such on account of two specimens in the collection of the Entomological Club, which were said to have been taken in the New Forest. Mr. G. H. Verrall, in his volume on the *Syrphidæ* just published, refers to these specimens, saying that he does not believe they really occurred there, and that they were removed from their position amongst the British insects of that collection some time ago. There is no reason, however, why it should not occur in this country, and the fact of its appearance in the Channel Islands adds to the probability of its occurrence here.—COLBRAN J. WAINWRIGHT, Handsworth, Birmingham: May, 1901

Aporomyia dubia, Fall., in Sutton Park.—On May 5th I found this little Tachinid in the greatest abundance in Sutton Park; it is always a common insect, but I have never seen it in such abundance. Previously I have always found it later in the season, at the end of May or beginning of June; on these occasions, although I have taken a large number of specimens, on examination afterwards only three or four males were found amongst them. On this occasion, however, sixteen specimens brought home proved to be *all* males; this rather points to the conclusion that the males of this species always appear before the females, as is known to be the case with other insects, notably *Lycæna argiolus*, the males of which happened to be in abundance at the same time and place. The flies were settled upon grass stems, dung, and the leaves of trees, many of them flying in the air and hovering somewhat after the manner of the common Anthomyids, a habit which I have not noticed in other Tachinids.—ID.

Note on Encephalus complicans, Westw.—The extent to which the abdomen of *Brachelytra* is carried in an elevated position varies quite unaccountably in different genera. The majority hold it slightly raised from the surface upon which they are walking, about on a level with the thorax. Some, such as *Bledius*, *Oxytelus*, &c., appear to trail it after them upon the surface, almost in the manner of *Meloë*, ♀. Others, such as *Tachyusa*, *Myrmedonia* and *Falagria*, habitually carry it nearly at right angles to the head and thorax. All *Brachelytra*, I believe, with of course the exception of the *Proteinina*, &c., revolute their abdomen when startled or annoyed; those which do not do so—*Omalina* among others—tuck in their antennæ and legs and feign death with rigidly extended abdomen.

Encephalus complicans would appear to be altogether unique in habitually bearing its dorsally-concave abdomen recurved so far that the anus reaches—if it does not actually touch—the anterior margin of the thorax. In this position the resemblance of the insect to a small *Agathidium* is most striking, and is accentuated by the short, slender legs, and slow, deliberate strides taken, which are very unlike the swift glidings of its congeners. But when disturbed its similarity to an Anisotomid is completed: the head is pressed downward on the chest, the antennæ tucked away beneath the lateral margins of the thorax, legs retracted close to the

sides, and abdomen yet more tightly rolled dorsally. It forms an almost perfect sphere and falls to the ground, attempting no active defence, and its naturally slow movements effectually precluding escape, except perhaps by flight. If this be mimicry, wherefore is it? The integument of *Encephalus* is, we may assume, nearly or quite as chitinous as that of *Clambus*, and the former probably possesses greater powers of exuding protective liquids. Truly is its name appropriate in more than one sense!

I took *E. complicans* in tufts in Suffolk on April 17th. This is its first recorded capture in the county since that near Blakenham by Rev. William Kirby, F.R.S., recorded by Stephens.—CLAUDE MORLEY, Ipswich: April, 1901.

Reviews.

BOTANIK UND ZOOLOGIE IN ÖSTERREICH IN DEN JAHRES, 1850 BIS 1900. Festschrift herausgegeben von der k. k. Zoologisch-botanischen Gesellschaft in Wien anlässlich der Feier ihres fünfzigjährigen Bestandes. Mit 38 Tafeln (mostly portraits) und 9 Abbildungen im Texte. Royal 8vo, pp. 620. Alfred Hölder. Wien. 1901.

It is a common practice with continental (especially teutonic) Societies to celebrate their Jubilee by the publication of a volume of original Memoirs. The bulky volume sent out by the very useful Society under notice is of a somewhat different nature, and is in fact a careful review of the work done in Austria during the fifty years of the Society's existence, and an account of the workers. This latter part is rendered of additional interest by the numerous full page portraits interleaved in the text, giving us an idea of the personal appearance of the bearers of familiar names. There is also an excellent account of the various museums in the country, with illustrations of most of them. From a detailed account of the history of the Society (by Dr. C. Brunner v. Wattenwyl) it would appear that it originated under the title of "Freunden der Natur" and "Freunde der Naturforschung," and from these beginnings the Society as it now exists expanded. It is useless to go here into exhaustive details; these are sufficiently exhaustive in the book itself, which owes much of its completeness to the energy of Dr. A. Handlirsch and Dr. R. v. Wattstein, but the number of authors who have contributed towards the building up of the work is great, and we must not omit Dr. K. W. v. Dalla Torre, who (*inter alia*) supplies a complete list of works and papers on Botany and Zoology published in the half century, and arranged chronologically to the number of 1200. This Festschrift is invaluable as a book of reference, and reflects the greatest possible credit upon all those who assisted in its production.

LIST OF BRITISH AND IRISH SPIDERS: by the Rev. OCTAVIUS PICKARD-CAMBRIDGE, M.A., F.R.S., &c. Pp. 86, 8vo. Dorchester: Sime and Co., 1900, and from the author.

Although Spiders are not true Insects, they are, or at any rate have been, generally considered as falling within the scope of Entomological publications, and most arachnologists are, like the compiler of this List, entomologists also. Therefore, no excuse seems necessary for noticing this List in our pages. Moreover, we are sure

that many will welcome such a production, which might escape the notice of some through being published at a local country town. Mr. Pickard-Cambridge is a veteran in the field of arachnology, and one may be sure that any List compiled by him is well done. The introductory notes mainly concern what has been done in this country since the publication of the "Spiders of Dorset" in 1881. At the present time the List enumerates 534 species contained in 153 genera. The synonymy and bibliography are full. There is also a List of 31 species described by Mr. Blackwall, "of which the types are lost and genera uncertain."

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *February 4th*, 1901.—ANNUAL MEETING.—MR. C. BRADLEY in the Chair.

The Annual Report of the Council was read, showing an increased number of Members in the Society and growing prosperity; and the Treasurer presented his Annual Statement, showing a small balance in hand.

Mr. G. T. Bethune-Baker was re-elected President, and Mr. H. Willoughby Ellis was elected Vice-President for the ensuing year; the remaining Officers being as before.

The following were exhibited:—Mr. R. C. Bradley, *Hymenoptera* of the genus *Ammophila*, three species, *sabulosa*, *hirsuta*, and *campestris*, all from Bournemouth, where all three species occurred together last August, the two former in abundance, the latter less commonly. Mr. Colbran J. Wainwright, rare *Diptera* taken in 1900: *Oxycera pulchella* from West Runton, Norfolk; *Didea fasciata* and *Melanostoma hyalinata* from Wyre Forest. Mr. G. W. Wynn, a large series of *Epunda lutulenta*, taken at sugar in Wyre Forest last autumn, they were very constant in coloration, all being dark, but not black specimens. Mr. A. D. Imms, *Acronycta alui*, bred from a pupa found under rotten palings between Hall Green and Solihull. Mr. H. Willoughby Ellis, a collection of *Coleoptera* taken in only three hours' collecting in Bedfordshire at Christmas last; the most noteworthy capture was *Bagous cylindrus*, of which rare species he obtained three specimens. *Agabus nebulosus* was present in thousands.

February 18th.—A meeting of a social character was held at the house of the president, by the kind invitation of himself and Mrs. Bethune-Baker. The Members attended in force, and a very enjoyable evening was spent in an examination of the large collections of Palæarctic and other *Lepidoptera*, formed in part by the late Dr. Jordan, and in part by Mr. Bethune-Baker himself.

March 18th, 1901.—Mr. G. T. Bethune-Baker, President, in the Chair.

Mr. J. T. Fountain showed a series of *Callimorpha hera* taken in Jersey last year, also living larvæ of the same. He had found a batch of the eggs on a leaf of ivy, and had succeeded in getting some of the larvæ thus far through the winter, and they were now active. He referred to the habits of various hibernators in the spring, and said that he had often seen the larvæ of *Arctia caia* in the early spring on posts, &c., in the sunshine, having apparently come up to sun themselves, and they went down again as soon as the sun went in; he had also seen the pupæ of

Bombyx rubi come up to the top end of their cocoons in sunny weather, also apparently to feel the warmth of the sun. Mr. R. C. Bradley, *Mutilla europæa* males and *rufipes* females taken at Bournemouth last summer. Mr. C. J. Wainwright, various *Hymenoptera*, including a series of the Chrysid *Cleptes pallipes* from West Runton, Norfolk, and *Osmia aurulenta*, &c, from Selsley, Gloucestershire. —COLBRAN J. WAINWRIGHT, *Hon. Secretary*.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: February 28th, 1901.—Mr. H. S. FREMLIN, F.E.S., President, in the Chair.

Mr. F. N. Clarke exhibited a specimen of *Pieris rapæ*, which emerged indoors on February 22nd. Mr. McArthur, an example of *Aretia Caja* with smoky hind-wings; it emerged in December, 1890, and was one of a third brood. Mr. Harrison, a long and varied series of *Luperina testacea*, from Wallasey, among them being two examples of the var. *nigrescens*. Mr. Edwards, pieces of chestnut branches showing the ravages of the larvæ of *Zeuzera pyrina*, a species doing considerable damage at the present time in the London Parks and Squares. Mr. Main, a *Mantis* from West Africa having large ocellated markings on the fore-wings (*Harpax*?). Mr. Montgomery, a number of cages for rearing *Lepidoptera*, to illustrate his paper on "The Breeding of *Lepidoptera*," where he detailed his methods of obtaining ova, of keeping young larvæ, of treating hibernating larvæ, and of keeping pupæ. A considerable discussion took place, several members giving their own breeding experience and the methods they had found successful.

March 14th, 1901.—The President in the Chair.

Mr. Colthrup, a long series of females of *Polyommatus Icarus* and *P. bellargus*, most of which showed a considerable amount of the male coloration. Several of the former were prettily splashed with white. They were all from Eastbourne. Mr. Routledge, a moth which he supposed to be a male of *Hydrilla palustris*. It was taken near Carlisle by Mr. Thwaites with a net while sugaring on June 10th, 1899. Several members doubted its identity, but could not tell what species it was. Mr. Harrison, a long species of *Aplecta nebulosa* from Delamere Forest, including var. *Robsoni*, and a specimen of *Xylophasia monoglypha* var. *æthiops*, taken at the same time and place. Mr. Adkin, a long bred series of *Caradrina ambigua*, which emerged in December, and read notes on the habits and food of the larvæ. Mr. McArthur, preserved larvæ of *Abraxas grossulariata*, *A. ulmata*, and *Pachnobia alpina*, with a specimen of *A. ulmata* taken near Brighton some fifty years ago. He stated that the species was not again taken in the district till some sixteen years ago, when it was locally in some numbers. Mr. Kirkaldy, specimens of the lantern flies *Pyrops candelarius* and *P. maculatus*, and contributed notes as to their protective resemblance to their surroundings. Mr. Burr called attention to the evasive habits of some British grasshoppers; large active males would leap and fly, heavy females would burrow, while the smaller individuals would run round the stems. Mr. Montgomery, a photograph of his larvæ-breeding house. Mr. Manger, a large number of exotic dragon-flies.

March 28th, 1901.—The President in the Chair.

Mr. Sich exhibited specimens of *Goniodoma limoniella* (*auroguttella*), and

stated that the larva quits the case when about to pupate; the following species of the genus *Coleophora*: *C. deauratella*, *C. Frischella*, *C. alcyonipennella*, *C. ochrea*, *C. vibicella* and *C. salicornia*, of which the last named also quits the case to pupate; together with specimens of *Gelechia tenebrella*, which bears a close superficial resemblance to *C. alcyonipennella*. Messrs. Harrison and Main, series of early spring Geometers taken this year in Delamere and Epping Forests. Among them was a specimen of *Nyssia hispidaria* taken in the former place. Mr. West, of Streatham, pieces of amber containing Homopterous and Dipterous insects. Mr. R. Adkin, specimens of *Acherontia Atropos* bred from larvæ taken in Huntingdonsshire, and read notes on the forcing of the species, especially calling attention to the internal appearance of the pupæ which failed to emerge. A discussion ensued, and various other methods of forcing were described. Mr. Montgomery, a larva of *Charaxes Jasius* sent to him from Cannes, with a *Gordius* worm which had extruded from it. Mr. Bishop read a paper, "The Natural History of the Guildford District."

April 11th, 1901.—The President in the Chair.

Mr. Carpenter exhibited a large number of specimens of *Pieris napi* bred from one batch of ova. Half the specimens had emerged in June and early July, while the remainder the following April and May. The former were very uniform, the latter were very variable in the female specimens. He also showed a long series of bred *Melitæa aurinia* from Penarth and Carlisle. Mr. McArthur, bright and well-marked specimens of *Plutella annulatella* from the Orkneys. Mr. Fremlin, a number of specimens of *Lepidoptera* and other insects taken during a short trip to Canada in 1900, and read notes. Mr. Lucas, the species of *Odonata* taken by Mr. Fremlin at the same time, including species of the genera *Sympetrum*, *Libellula*, *Gomphus*, *Æschna* and *Agrion*.—H. J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: April 3rd, 1901.—Mr. CHARLES G. BARRETT, Vice-President, in the Chair.

Mr. Albert Piffard, of Felden, Boxmoor, Herts., and Mr. P. Lathy, of Lyndon Villa, Sydney Road, Enfield, were elected Fellows of the Society.

Mr. Goss read a letter from the Right Hon. Charles Ritchie, Secretary of State for the Home Department, conveying the King's thanks for the loyal address of the Society on the occasion of the lamented death of Her Late Majesty Queen Victoria. The Rev. A. E. Eaton sent for exhibition on behalf of Mr. Halford a ♀ sub-imago of a species of *Ephemeridæ* of the genus *Ephemeræ*, received from Central Africa without more precise indication of locality, the first report of the observation of the genus in Africa. Mr. McLachlan remarked that *Ephemeræ* occurred in cold, Alpine or temperate regions, and that this example probably inhabited the mountains at a considerable altitude. Dr. Chapman exhibited cases of *Luffia ferchaultella* from Cannes, and a spider found on the same rocks, the interest of the specimens being in the fact that the spider when at rest has almost precisely the same form and coloration as the cases of the moth. Mr. W. L. Distant communicated a paper entitled, "An Enumeration of the *Heteroptera* (*Rhynchota*) collected by Leonardo Fea in Burma and its vicinity."—H. GOSS and H. ROWLAND-BROWN, *Hon. Secretaries*.

COLEOPTERA FOUND AROUND JERUSALEM.

BY A. H. SWINTON, F.E.S.

Beetles appear to parade in greater numbers at Jaffa than at Jerusalem. Jaffa, when the waves course in to break with a musical murmur along their heaped-up ridges of *Pectunculus* shells, and softly foam on the harder concreted blocks, is a paradise for the Nimrod who can trudge along the loose sand and brave the spring-tide glare on its low dunes; sprinkled over with the *Silene succulenta*, *Trifolium palæstinum*, and glandular *Ononis natrix*; and now and again diversified with the blue calyces of the *Statice sinuata*, and the bluer terminal leaves of the *Salvia hormium*. Among the stunted vines and scattered sea grass, a *Graphiptera* with white spots, or an *Erodium*, is running nimbly; a *Pimelia* is sauntering slowly; afar on the camel track leading onward to Cæsarea, an *Onitis* with a sea-green thorax, a ball-rolling *Ateuchus*, or a *Clivina* are busy; nor are the inland hillocks, perfumed with the orange flowers, and decked with the pink *Linum pubescens*, and yellow *Linum gallicum*, without their tiger beetle. On the bare Jerusalem downs *Coleoptera* are certainly rather plentiful in the spring, and they linger on in the furrows; but when the mildew withers the roses, and the drought of the dog-days burns the grass yellow, they nearly all vanish. The following is a list of those I met with at Jerusalem in the summer of 1896, with appended notices of others known to occur there. For the names I am very much indebted to the kindness of the Rev. H. S. Gorham.

GEODEPHAGA.

Nebria Hemprichi, Klug, April. Found by the Rev. F. A. Walker under stones, noticed by Dr. Festa also at Es-Salt, Djerach, and on Hermon.

Notiophilus substriatus, Waterh., March. Found also by Dr. Festa at Bekfeia. It is spread over Europe and extends to England.

Broscus laevigatus, Dej. Extends to Egypt and Tunis.

Aristus punctatissimus, Bandi, March and August. A small species, found also by Dr. Festa at Djerach.

Ditonus longipennis, Chaud., March. It extends to Tiflis, Persia, and near Jerusalem is less in size, according to Signor Baudi, than in the Lebanon. *D. robustus*, Dej. Found likewise in Corfu.

Harpalus seriatus, Chaud., var. *Caiphus*. It extends to the Caucasus.

Calathus distinguendus, Chaud., var. *syriacus*, March, May, June. Common on the waste garden ground among the *Hypericum crispum* and *Lactuca Scariola*, and on the rubbish heap where the date stones are sprouting into little plaintain-like palms. It is found on the Taurus, and in Cilicia. *C. melanocephalus*, L., March and June. Found by Dr. Festa also at Madeba and Lake Huleh. It is spread over Europe, and extends to England.

Blechnus glabratus, Duft., March. It is spread over Europe, and extends to England.

BRACHELYTRA.

Oxytelus sculpturatus, Grav., March. Found by Dr. Festa likewise at Es-Salt; it extends to England.

NECROPHAGA.

Choleva fusca, Panz., March. Extends to the north of Europe.

Brachypterus Abeillei, Tourn., March.

Meligethes rotundicollis, Bris., March. It extends to the south of France and England.

Dermestes vulpinus, F., July 2nd. A number on the carcass of a Pariah dog. It is found in Europe, Asia, Africa, and America.

Attagenus bifasciatus, Rossi, May 19th. It extends to Italy.

HISTERIDÆ.

Hister, sp. ? A minute species.

LAMELLICORNES.

Ateuchus sacer, L. Noticed at Jaffa in April, and found lying dead on the Mount of Olives in summer, when beetles were scarce. It is found around the Mediterranean, and extends to Ceylon.

Gymnopleurus mopsus, Pallas, April to June. Common on the tracks of the camels that were bringing building stones from Bethlehem to the suburbs. It is found around the Mediterranean. *G. flagellatus*, Fab., June. On camel tracks near Solomon's pools south of Bethlehem. It is found around the Mediterranean, and extends to Bokhara.

Sisyphus Schaefferi, L., May and June. Around Jerusalem on "stercore humano," in which it dives and swims with its long and sprawling hind-legs.

Copris hispanus, L., May 23rd. In a vertical hole in the ground under the dung of an ass. Dr. Festa found it at Es-Salt, and it is common around the Mediterranean and Black Sea.

Onthophagus mundus, May to July. Around Jerusalem and Bethlehem. *O. aleppensis*, Redt. *O. nuchicornis*, L., May and July. Extends to England. *O. amyntas*, Oliv., April to July. With the above it extends over Southern Europe, and is found in Persia. *O. oryx*, Fabr., May 23rd. With the above; it extends to India and Java.

Amphicoma vulpes, Fab., var. *psilotrichia*, Waltl. The Rev. F. A. Walker mentions that he found this beetle in the Valley of Jehoshaphat, and between Jaffa and Jerusalem; it extends to Persia. *A. hyrax*, Truqui, August 5th. On the flowers of a thistle. *A. papaveris*, Sturm, August 3rd and 5th. On the flowers of a thistle, which is strange. In the spring on the sandy isthmus of Corinth, *A. vulpes* clusters, bee-like, around the calyces of the purple poppies and scarlet anemones.

Anisoplia flavipennis, Br., May 23rd. Found in Southern Europe and Asia Minor.

Oxythyrea cinctella, Schaum, March to May. Came to the dog-roses in the garden; it extends to Southern and Central Europe. *O. stictica* I found at Jaffa.

Tropinota squalida, L., August 5th. On flowers; Dr. Festa noticed it at Jaffa and Mar Saba; it extends around the Mediterranean.

Cetonia morio, Fab., May and June. Passes the morning gnawing the growing tops of a globe thistle, *Echinops viscosus*; it is common in Southern Europe. *C. libani*, G. and P., April. *C. affinis*, And., June 13th. Found in the south of Europe and Asia Minor. *C. Joussetini*, G. and P., May and June. Specimens with the thorax more or less rosy; like our English rose-beetle, it delighted in a row of dog-roses that were in bloom in May, and which afterwards were covered with fungus.

Osmoderma eremita, L. It extends to Europe.

BUPRESTIDÆ.

Chalcophora stigmatica, var. *quadrinotata*, Klug, May to July. Flew among the fruit trees, and preferred to settle on the foliage of the almond; it extends to Turkey and Persia.

Capnodis cariosa, Pall., July 27th. With a malformation of the head and one eye only, recalling the tale of the cyclops; it flew to the almond tree; extends to Italy, Greece, and Russia. *C. miliaris*, Klug, May to August. Flew among the fruit trees, and preferred to settle on the foliage of the almond; Dr. Festa noticed it at Tripoli, in Syria; it extends to Persia.

Steraspis libanica, May 23rd. When settled on the almond tree this bright green beetle presents the same contrast to the preceding, which appear as if they were coated with tar, that *Cetonia Joussetini* does to *C. morio*, which seems as though it were stained with ink.

Aemæodera, sp.?, June 21st. Thorax brassy; elytra brown, with an anterior lateral and posterior dorsal yellow line.

MALACODERMATA.

Lampyris antiqua, Br., June 28th. Flew to light. I heard talk of glow-worms on the moorland, but did not notice their light.

Rhagonycha straminea, Kies., April to July. Flew about an elder bush beside the garden wall. At Jaffa I noticed *Telephorus lividus* among the purple-flowered *Sinapis* and *Ficaria sativa* in the fields, which in places were aglow with poppies and pheasant's eye, and in company with it *Malachius marginellus*.

Melyris, sp.?, July 20th. A blue-green beetle with reddish legs and abdomen, that clustered on the purple globe thistle, *Echinops viscosus*, when it came into flower, in company with the light red *Zygia rostrata*, with which it appeared identical, until the longer snout of the latter was revealed by the magnifying-glass. Mr. Gorham thinks that the two kinds are distinct, and that it is not a question of a blue and red variety of *Z. rostrata*.

Trichodes 4-guttatus, Ad., June 9th. In the fields.

Necrobia rufipes, De G., July. Said to frequent old bones which have accumulated around the walls of Jerusalem since the days of Abraham; it is found in England, Africa, &c.

HETEROMERA.

Zophosis orientalis, Deyr., May to August. This, and its congeners, run quickly over the sandy soil, and herein they present a contrast to some of the following, bulky, slow-crawling species; while in shape they resemble one of the aquatic beetles, suggesting that their proper habitat is the water side.

Erodium Dejeani, Sol. Found likewise in Mesopotamia.

Adesmia anthracina, Klug, March and April. Also at Mar Saba. *A. procera*, Mill., *A. clathrata*, Sol., June and July. This last-mentioned beetle, which has been likened to a Brazil nut, is often met sauntering along the hot gullies that lie on the east and south of Jerusalem, on the site of the Potter's Field, King's Garden, and pool of Siloam, or in the dry chalky furrow of the Kedron.

Tentyria Sauleyi, Reiche, March to July. Also at Jericho and Es-Salt. *T. laticollis*, Kr., April. Noticed by the Rev. F. A. Walker at Jerusalem; Dr. Festa met with it at Jericho and Mar Sabo. *T. collatina*, Reiche.

Blaps indagator, Reiche, May and June. On June 16th I noticed newly emerged individuals crawling under the monastery wall on the Hill of Evil Council. *B. gages*, L. Examples sent me by Miss Fitzjohn.

Pinelia bajula, Klug, May to June. Crawls about the old cisterns at Bethany; found by Dr. Festa at Es-Salt. *P. derasa*, Klug, May. Found likewise in Egypt. *P. aculeata*, Klug, May. In the Jerusalem corn fields, and on the Jaffa sand hills.

Ocnera philistina, Reiche, March. Found also by Dr. Festa at Jaffa. *O. hispida*, Forskal. Noticed by the Rev. F. A. Walker; Dr. Festa found it in Mar Saba and Alexandria; sometimes seen crushed on the roadway.

Akis, sp.?, June 23rd. A small species.

Dendarus pauper, Muls., March. Noticed by Dr. Festa. *D. crassiusculus*, Muls., March. Found by Dr. Festa also at Es-Salt.

Tenebrio obscurus, Fabr., June. In kitchens, as in Europe and probably North America.

Opatrum, sp.?, June. A small species, very common on the sandy soil.

Omophlus lepturoides, Fabr., May. Extends to Europe.

Meloe tucius, Rossi, April. Extends over the south of Europe and Asia Minor.

Cantharis dimidiatipes, Reiche, March. Dr. Festa found it also at Dejrach and in the Anti-Lebanon.

Mylabris angulata, Klug. In a flowery furrow leading to the Kedron; found likewise at Alexandria and Tunis.

Zonabris bimaculata, Klug, March. Also noticed by Dr. Festa at Jericho.

Lydus pallidicollis, Gyll. On barley ears at harvest time in June, and on the thistle heads in August. The elytra of this species vary in colour from brownish-ochreous to black, with a brownish-yellow patch at the base.

Halosinus syriacus, L., May and August.

Nematognatha chrysomelina, Fab., July.

RHYNCHOPHORA.

Cionus olens, Ch. I found the larva feeding on Moth-Mullein, *Verbascum tripolitanum*, on the summit of the Frank Mountain at Bethlehem at the end of July, and when seized it exuded a blood-red drop. In captivity it spun a pale brown, oval case, with raised dots, from which the beetle emerged on August 11th by pushing off the end; it extends to Europe.

Brachycerus plicatus, Gyll., March. Noticed by Dr. Festa.

Hypera cypris, Capiom., March. Noticed by Dr. Festa. *H. punctata*, Fab., July 20th. Noticed also by Dr. Festa at Beyrout; it extends to England.

LONGICORNES.

Prionus Lefebvrei, M. Its larvæ, as might seem, inhabit the olive stumps the camels bring round to the kitchens for fire wood.

Hylotrupes bajulus, L. I have obtained several specimens of this beetle.

Cerambyx cerdo, L., June 16th. Flying among the olives in front of the Russian buildings; it extends to Europe, and is very common on the banks of the Po, in Italy.

Phytæcia humeralis, Redt., May. This little longicorn, which stridulates on seizure, extends to Turkey.

PHYTOPHAGA.

Crioceris melanopa, L., March. Found also by Dr. Festa at Mar Saba. I found another species of a chestnut colour on July 2nd, which I think extends to Northern India.

Labidostomis taxicornis, Fabr., June 2nd. On the branches of the garden pepper tree, *Schinus molle*.

Coptocephala scopolina, L., August 22nd.

PSEUDOTRIMERA.

Coccinella 7-punctata, L., April to June. In the fields at Jaffa and Jerusalem, and found of resting on the ears of corn.

Vineyard, Totnes, Devon.

TRICHOPTERA, PLANIPENNIA, AND PSEUDO-NEUROPTERA
COLLECTED BY DR. T. A. CHAPMAN AND MR. G. C. CHAMPION
IN THE UPPER AND LOWER ENGADINE IN JULY, 1900.

BY ROBERT McLACHLAN, F.R.S., &c.

During their stay at Pontresina (Upper Engadine) and Guarda (Lower Engadine) in 1900 Dr. Chapman and Mr. Champion collected a not inconsiderable number of "*Neuroptera*," which they kindly gave me. Their enumeration may serve as an item in local knowledge of the Swiss Fauna [a few species from outside the limits mentioned above are enclosed in square brackets].

In this Magazine, vol. xvii, pp. 217—222, I gave an account of the species collected by myself at Pontresina and neighbourhood in August, 1880. As the results of the labours of a specialist the number of species there enumerated is considerably greater, nevertheless, some species are included in the present List from the same quarter that were not found by me. I am not aware of the publication of any previous List from Guarda.

TRICHOPTERA.

PHRYGANEIDÆ.

[*Phryganea striata*, L. :—1 ♀, Davos, G. C. C.].

LIMNOPHILIDÆ.

Limnophilus rhombicus, L. :—1 ♀, Guarda, T. A. C., of the rather pronounced form occurring at high alpine and high northern localities.—*L. flavicornis*, F. :—1 ♀, Guarda, G. C. C., very heavily marked with black.—*L. extricatus*, McLach. :—1 ♀, Guarda, T. A. C.

Asynarchus cænosus Curt., var. *arcticus*, Kol. :—Pontresina, G. C. C.

Stenophylax picicornis, Pict. :—Pontresina, G. C. C.—[*latipennis*, Curt. :—Davos, ♂, G. C. C.; Ragatz, ♀, G. C. C.; both slightly doubtful].

Halesus ruficollis, Pict. :—Pontresina, G. C. C.

Metanæa flavipennis, Pict. :—Pontresina, T. A. C., G. C. C.; Guarda, G. C. C.; [Davos, G. C. C.].

Drusus discolor, Rbr. :—Pontresina, T. A. C.; Guarda, G. C. C.—*D. chrysotus*, Rbr. :—Pontresina, T. A. C.; Guarda, G. C. C.—*D. melanchates*, McLach. :—Pontresina, T. A. C., G. C. C.—*D. nigrescens*, M.-D. :—Pontresina, G. C. C.; Guarda, T. A. C.

Potamorites biguttatus, Pict. :—Guarda, G. C. C.

SERICOSTOMATIDÆ.

Silo nigricornis, Brauer :—Pontresina, T. A. C., G. C. C.

Lithax niger, Hag. :—Pontresina and Guarda, G. C. C.

HYDROPSYCHIDÆ.

Plectrocnemia conspersa, Curt. :—Guarda, G. C. C.

RHYACOPHILIDÆ.

Rhyacophila vulgaris, Pict. :—Pontresina [and Davos], G. C. C.

PLANIPENNIA.

SIALIDÆ.

Sialis lutaria, L. :—Pontresina, G. C. C.; Guarda, T. A. C.

RHAPHIDIIDÆ.

Rhaphidia flavipes, Stein :—Guarda, G. C. C.

PANORPIDÆ.

Panorpa vulgaris, Imhoff :—Guarda [and Davos], G. C. C. No opinion is here expressed as to the specific validity of the form or otherwise.

CHRYSOPIDÆ.

Chrysopa perla, L. :—Pontresina, T. A. C.; Guarda, G. C. C., in abundance.—*Ch. prasina*, Burm. (*aspera*, Wesm.) :—Guarda, G. C. C.—*Ch. ventralis*, Curt. :—Guarda, G. C. C.—*Ch. vulgaris*, Schneid. :—Guarda, G. C. C.

HEMEROBIIDÆ.

Megalomus hirtus, L. :—Guarda, G. C. C., very common; Pontresina, one T. A. C.

Hemerobius nervosus, F. :—Pontresina, G. C. C.—*H. Mortoni*, McLach. :—Pontresina, T. A. C. and G. C. C.; Guarda, G. C. C.—*H. nitidulus*, F. :—Guarda, T. A. C.; Pontresina, G. C. C.—*H. pini*, Steph. :—Guarda, G. C. C., one.—*H. atrifrons*, McLach. :—Guarda and Pontresina, T. A. C. and G. C. C.—*H. concinnus*, Steph., var. *4-fasciatus*, Reuter :—Guarda and Pontresina, G. C. C.; Pontresina, T. A. C.

PERLIDÆ.

PSEUDO-NEUROPTERA.

Dictyopteryx intricata, Pict. :—Pontresina, G. C. C., very large and dark.—
D. alpina, Pict. :—Guarda, Pontresina [Davos], G. C. C., many examples of large size and very strongly marked.—*D. fontium*, Ris :—Guarda [Davos and Ragatz], G. C. C. I had this species (not then recognised) in view when I penned my remarks on *D. alpina* in Ent. Mo. Mag., xvii, p. 221.

Chloroperla rivalorum, Pict. :—Pontresina, Guarda [Davos], G. C. C.

Isopteryx montana, Pict. :—Pontresina, G. C. C.—[*tripunctata*, Scop. :—Davos, G. C. C.]

Teniopteryx neglecta, Albarda :—Pontresina and Guarda, very common, G. C. C., all females.

Also some undetermined *Nemoura* and *Leuctra*.

EPTHEMERIDÆ.

Cloëon dipterum, L. :—Pontresina, T. A. C., subimago.

[*Rhithrogena semicolorata*, Curt. :—Davos, G. C. C.].

Ecdyurus venosus, F. :—Pontresina, G. C. C., T. A. C. These examples are of unusually large size, and were no doubt from the intensely cold Lac St. Moritz, at which lake I found the same form in abundance in 1880.

ODONATA.

Sympetrum striolatum, V. d. L. :—Guarda, G. C. C.—*S. flaveolum*, L. :—Guarda, very common, G. C. C.

[*Æschna cyanea*, Müller :—Ragatz, G. C. C.].

Lestes dryas, Kby. (*nympha*, Selys) :—Guarda, G. C. C.—*L. barbara*, V. d. L. : Guarda, G. C. C.

Lewisham, London : May, 1901.

A NEW SPECIES OF TRICHOPTERA FROM SWITZERLAND.

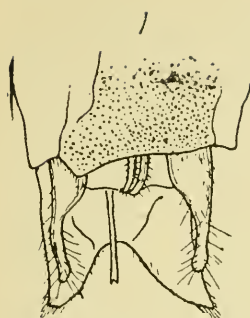
BY ROBERT McLACHLAN, F.R.S., &c.

Early in April, 1899, Dr. Chapman collected a few *Trichoptera* at Locarno (Ticino) which he kindly gave to me. Amongst them was a single ♂ of a *Drusus* that appeared to be new. Thinking it might be known to Dr. Ris, but undescribed, I submitted the example to him, he did not know it, and agreed with me that it represented a new species ; he also kindly supplied the accompanying drawings.

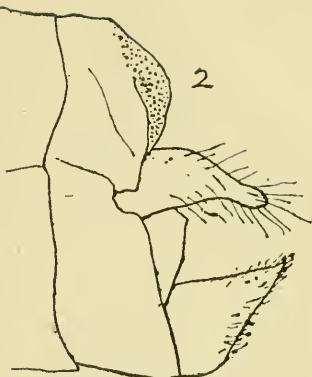
DRUSUS CHAPMANI, n. sp.

Belongs to the group of black species represented by *D. Muelleri*, McLachlan, *D. nigrescens*, Meyer-Dür, and *D. melanchates*, McLachlan ; most allied to *D. Muelleri*.

Body black, neck with golden hairs. Antennæ black. Legs blackish, but with close fine golden pubescence, giving them a golden sheen. Anterior wings black when fresh, but soon fading to leaden-grey, without any small pale points, but with a conspicuous white spot at the thyridium and another at the areulus ; neuration black. Posterior wings grey, darker towards the apex, and with darker fringes ;



neurulation blackish. Appendages formed much after the same plan as in *D. Muelléri*, but differing therefrom. Superior appendages much dilated at the base if viewed laterally, and then narrowed into a short finger-shaped



process, which is turned down; this process is much shorter than in *D. Muelléri*. Intermediate appendages not very clear, apparently short, broad, approximate, and curved upwards. Inferior appendages somewhat as in *D. Muelléri*, but broader and less widely divergent.

Length of body, 9 mm.

Expanse of wings, 26 mm.

Hab.: Switzerland (Locarno), April 6th, 1899, one ♂ (*Dr. T. A. Chapman*) in my collection.

It would be useless to draw a comparison with the other black species (*nigrescens* and *melanchætes*), because these differ widely in their anal structure, whereas with *Muelleri* there is apparently real affinity and at the same time quite sufficient specific differences. Amongst other species there is slight analogy with *D. alpinus*.

It may be that *D. Chapmani* is an early species; few entomologists have begun alpine collecting so soon as the first week in April; and it may also be that it is peculiar to the warm trans-alpine district in Switzerland and the adjoining parts of North Italy.

EXPLANATION OF FIGURES.

Fig. 1, apex of abdomen of ♂ from above (not quite even).

Fig. 2, same from side.

Lewisham, London:

June 9th, 1901.

NOTES ON CERTAIN PALÆARCTIC SPECIES OF THE GENUS *HEMEROBIOUS*: *H. CONCINNUS*, AND ITS VAR. *QUADRIFASCIATUS*.

BY KENNETH J. MORTON, F.E.S.

Some time ago, when working in conjunction with Mr. McLachlan on the genus *Hemerobius*, I had occasion to examine minutely *H. concinnus* and its so-called var. *quadrifasciatus*. The latter form, although very abundantly different in facies from the typical *concinus*, had remained without a distinctive name until 1894, when Reuter applied to it the term *quadrifasciatus*.

When looking at the two insects together, the conviction was irresistible that one had to do with two perfectly good species. The case, however, apparently presented analogy to the *pini-atrifrons* difficulty, inasmuch as the external aspect of the appendages of the ♂ seemed to be similar in both forms. But it differed in this way: in the constituents of the *pini-atrifrons* group, as regards general appearance, there was a blending of the forms which, as Mr. McLachlan pointed out, left one in a state of uncertainty as to the true location of certain specimens; while between *H. concinnus* and *quadrifasciatus* no specimen that could reasonably be regarded as transitional had ever come under my observation. I am aware that at least one of my colleagues (Prof. Klapálek) considers that through the apparently blending forms of *H. pini* and *H. atrifrons* a subtle line can be drawn, but so far this line forms no image on my retina. His opinion, however, is worthy of full consideration.

But whether *H. pini* and *H. atrifrons* are distinct species or no, they are sufficiently near to each other to prevent any surprise at the close resemblance which exists in the appendages of the two. On the other hand, *H. concinnus* and *quadrifasciatus* are so different looking that the great similarity in these parts is rather remarkable. However, as far as the rather restricted available material of the latter form allows a decision, one fine point of distinction exists, and the primary object of the present notes is to draw the attention of observers to this character. For my own part, even with the small amount of material under review, I am satisfied that the two forms are distinct species.

Reuter's diagnoses (in Swedish) may be rendered thus:—

H. CONCINNUS, Stephens.

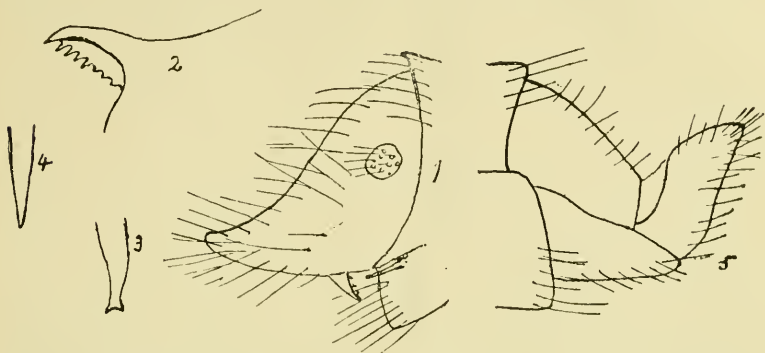
Fore-wings ochreous-yellow or brownish-yellow, with darker markings about the gradate nervules and small spots along the outer and inner margins, besides often angulated shadings about the nervures. Body uniformly ochreous-yellow or brownish-yellow, sometimes with the sides of the thorax and face blackish-brown.

H. QUADRIFASCIATUS, Reuter.

Fore-wings pale grey, with brownish-grey spots along the margins and angulated markings about the nervures; also four nearly unbroken brownish-grey transverse bands at about equal distances from each other, the first running over the furcation of the cubitus and the origin of the second radial sector, and the last over the outer row of gradate nervules. Face pitchy-brown, thorax in the middle yellowish, on the sides pitchy-brown. Abdomen brownish.

As Reuter states, *quadrifasciatus* recalls *H. nervosus*, and I have received it under the latter name. The transverse bands vary and are not always very complete. The general aspect of *concinnus* is yellowish, as opposed to the grey of *quadrifasciatus*.

The male appendages in both forms are broad and pointed, with a large backward-directed tooth on the lower edge, the inner margin of



this tooth being regularly serrate. The tooth is not always visible from the side; theoretically it is the lower branch of the furcate form of appendage which prevails in the genus.

Viewing the apex of the abdomen of the ♂ from above, a small inner process can as a rule be seen, and it is the form of the apex of this process which affords the distinctive character. In *concinnus* the process is *furcate*; in *quadrifasciatus* it is *simple and pointed*.

I have already remarked elsewhere that observations in the field are wanting as to whether the two forms occur together, or, as a rule, separately. Such observations would be interesting, and I am confident they would, on the whole, tend to confirm the views here expressed.

EXPLANATION OF FIGURES.

1. Apex of abdomen of ♂ of *H. concinnus*, from side.
2. Tooth of appendage (more enlarged); latero-ventral view.
3. Apex of inner process.
4. Apex of inner process of *H. quadrifasciatus*.
5. Apex of abdomen of ♀ *H. concinnus*, from side.

13, Blackford Road, Edinburgh:

May, 1901.

HEMEROBIUS LONGIFRONS, WALKER, IS NOT TO BE INCLUDED
IN THE EUROPEAN FAUNA.

BY ROBERT McLACHLAN, F.R.S., &c.

So long ago as 1867 (Journ. Linn. Society of London, Zoology, vol. ix, p. 272) I published a statement to the effect that *Hemerobius longifrons*, Walker (Cat. Neurop. Brit. Mus., Pt. ii, p. 291), of which the type is from Hudson's Bay, was also found in Europe, and gave

several localities for it in the Alps of Central Europe, and also a re-description drawn up chiefly from European examples. On the strength of this, "*H. longifrons*, Wlk.," has found its way into European Lists, but erroneously. Although I think I have, probably on more than one occasion, alluded to the error, no formal correction of it has been made.

I now state that, although undoubtedly allied, the North American insect is not, in my opinion, specifically identical with the European.

This latter is what is known as *H. concinnus*, Steph., var. *quadrfasciatus*, Reuter, concerning which my friend Mr. Morton has just written an article. Since my paper of 1867 was published this insect has proved wide-spread in Europe and even in Britain. Mr. Morton's views favour the idea that it is specifically distinct from *H. concinnus*, and he is probably right; according to my own observations, the two forms appear to keep isolated, and without any very evident intermediate conditions. I have about 40 examples of *quadrfasciatus* from very varied localities.

I am glad to have an opportunity of bringing this matter more prominently forward.

Lewisham, London :

June 2nd, 1901.

CÆLIOXY'S MANDIBULARIS, NYL., AN ADDITION TO THE BRITISH LIST OF ACULEATES.

BY WILLOUGHBY GARDNER, F.L.S.

The sand hills fringing the coast at Wallasey in Cheshire have long been famous as entomological collecting ground; with their luxuriant and varied flora they are prolific in many uncommon forms of insect life, and they have in course of years furnished such noteworthy additions to our British insect fauna as *Biston zonaria*, *Ægialia rufa*, and *Colletes cunicularia*. Though now sadly deteriorated, from a naturalist's point of view, by golf clubs, summer camps, etc., their entomological treasures are apparently not yet exhausted, and they have now the honour of adding another bee to our British list.

While collecting material for a new Aculeate-Hymenopterous fauna of Lancashire and Cheshire, the writer had submitted to him a small box of bees collected locally by Mr. Fredk. Birch, Joint Hon. Sec. of the Lanc. and Ches. Ent. Soc.; this contained an unrecognisable specimen of a female *Cælioxy*s, which has since been indentified, with his usual kindness, by Mr. Edward Saunders as *C. mandibularis*, Nyl., a species new to Britain. Mr. Birch informs me that he cap-

tered the insect at Wallasey in the month of July last year; it was running up and down a wooden post, probably searching for a burrow of some *Megachile* or *Osmia* in which to deposit its eggs.

Mr. Saunders is kindly contributing a specific description of the bee in a separate note.

Reform Club, Liverpool :
June 12th, 1901.

CÆLIOXYX MANDIBULARIS, NYL.

Notis. Saells. Faun. Flor. Fenn. Fort., i, p. 252, T. 3, fig. 13.

BY EDWARD SAUNDERS, F.L.S., V.-P.E.S.

Mr. Gardner has asked me to draw up a short account of the distinguishing characters of this interesting addition to our fauna, which, I hope, now that attention has been called to it, will be found in other parts of the country. It superficially resembles the other species so closely that it may have occurred frequently without being noticed. Small females with triangular white hair spots on the sides of the abdomen should be carefully examined as to the form of the mandibles.

This species closely resembles *C. elongata*, Lep., and *C. acuminata*, Nyl., but as a rule it is slightly smaller than either of these. The calcaria, however, are black in both sexes, and in the ♂ the second abdominal segment above the lateral transverse fovea is densely clothed with velvety pubescence. The fifth ventral segment is formed as in *elongata*, i.e., without any central emargination. The ♀ may be distinguished from any of our species by the form of the mandibles; these are produced into a distinct angle near the centre on their anterior side, just above the base of the apical groove; the mandibles are densely clothed with hairs and consequently the angle is easily overlooked. To see it fully the insect should be turned on its back and the mandibles examined from behind, when it appears most conspicuously; besides this, the black calcaria, the widely interrupted abdominal bands which form triangular lateral spots, the rather less remote puncturation, the narrower apical ventral valve, which has less distinct lateral teeth, and the narrowly interrupted ventral bands are apparently constant characters.

Length, 8—10 mm. (the British specimen only measures 8 m.m., but it is probably unusually small, as my Continental examples are all larger).

This appears to be a somewhat scarce species everywhere. Friese (*Die Bienen Europa's*, i, p. 66) records it from Central Europe, Sweden, Petersburg, Helendorf (Caucasus). I have specimens from Switzerland, and both sexes from Ritsema labelled "Bloemdaal, June 25th, 1877, *Echium vulgare*." Its host, I believe, is not known, and any information on this point would be of great interest.

St. Ann's, Woking :
June 14th, 1901.

A NEW GENUS AND SPECIES OF AUSTRALIAN *HESPERIADÆ*.

BY E. MEYRICK, B.A., F.Z.S.

In Watson's revision of genera of the *Hesperiadæ* (Proc. Zool. Soc. Lond., 1893, pp. 3—132) several Australian genera are indicated, allied to *Telesto*, which I regard as insufficiently grounded and not truly separable from that genus, being based on differences of antennal structure which are only comparative and vary specifically (and even to some extent individually). *Motasingha*, Wats., *Hesperilla*, Hew., and *Patlasingha*, Wats. (beside others indicated as distinct, but not named), are thus in my judgment untenable. The following genus, however, appears to be truly distinct, both structurally and superficially.

MESODINA, *n. g.*

Club of antennæ elongate, pointed, bent. Palpi obliquely ascending, terminal joint very short. Posterior tibiæ without middle spurs. Fore-wings in ♂ without stigma; vein 5 parallel to 4 and 6, slightly nearer to 6 at base. Hind-wings with vein 5 obsolete.

Nearly allied to *Trapezites* and *Telesto*, but differing from both in the absence of the middle spurs of the posterior tibiæ. Type, *M. halyzia*, Hew. Besides the type I know only the following new species:—

M. æLUROPIS, *n. sp.*

♂ 36 mm. Head, thorax, and abdomen dark fuscous. Fore-wings rather elongate-triangular, costa subsinuate, termen gently rounded, slightly oblique; dark brown, becoming dark fuscous towards costa, with some yellowish hairs anteriorly on dorsal half; a trapezoidal light ochreous-yellowish blotch occupying posterior end of cell, broadest beneath; a transverse angular light ochreous-yellowish blotch between veins 2—4, cut by vein 3, its upper angle nearly touching lower angle of preceding blotch; three very obscurely indicated pale yellowish dots placed in a straight transverse series between veins 6—9, slightly nearer cell than apex: cilia fuscous, basal half darker. Hind-wings with termen strongly rounded; dark brown, slightly coppery-tinged, especially in disc; hairs in disc yellow; an undefined spot of scattered yellowish scales in disc beyond cell. Fore-wings beneath fuscous, becoming dark fuscous in disc, sprinkled with pale greyish scales towards upper half of termen; discal blotches as above, but rest of cell filled with deep yellow. Hind-wings beneath fuscous, densely irrorated with whitish-grey; the absence of irroration forms a postmedian series of three obscure roundish spots between veins 1b—4.

Katoomba (in the Blue Mountains), New South Wales, in November; one specimen received from Mr. G. Lyell.

Elmswood, Marlborough:
June, 1901.

REDISCOVERY OF *LOXOPERA DEAURANA*, PEYR., WITH A
NOTE ON ITS LIFE-HISTORY.

BY T. A. CHAPMAN, M.D., F.Z.S.,

WITH NOTES BY J. HARTLEY DURRANT, F.E.S.

This spring (March) I thought it might be worth while to examine, on the Ile Ste. Marguerite at Cannes, the dead stems of *Smyrnum olusatrum* (which is almost more abundant there than the giant fennel), for larvæ of *Loxopera*. The question was, were there any, and if so, were they *francillonana* as in the fennel or another species. The stems duly yielded *Loxopera* larvæ, but much less freely than the fennel; frequently, indeed, stems occurred without any. It is difficult to say how many a stem contains, without completely chopping it up. I should say, however, that six or eight to a stem was the average of tenanted ones, and a score probably an outside number, as against 20 to 100, or possibly even more, that practically every fennel plant contained. Of course it must be remembered that the *Smyrnum* stem is not so large as that of the fennel, and is moreover hollow. Could one carry off a few faggots of the stems no doubt any number of moths might be bred; I took only a few selected pocket samples, some of which have yielded nothing, one produced five moths. These Mr. Durrant informs me are *L. deaurana*, Peyr. They emerged usually about 6—7 a.m. at various dates from April 29th to May 15th, at which date no *L. francillonana*, kept in the same room, had appeared. This earlier appearance would roughly correspond with the earlier date of flowering of the Alexanders than of the Fennel. The dates are of course not necessarily those of the species when at home, which would probably be rather earlier. The evidence of the stems I cut up was clearly that the larvæ entered the stem when full grown, having previously no doubt lived in the seeds. It affords an ichneumon very like the *Chelonus inanitus* which preys on *L. francillonana*, and is, I believe, the same species.

Betula, Reigate: May, 1901.

[When Lord Walsingham published his paper on *Loxopera francillonana*, F., and its allies [Ent. Mo. Mag., XXXIV, 70—6, Pl. II (1898)] we were unacquainted with *Cochylis deaurana*, Peyr. I believe this species has not been taken since Peyerimhoff captured a single specimen on the Ile Ste. Marguerite before 1877, Millièrè² doubtless referred to the same specimen when he quoted in inverted commas, "Un ex. pris au reflecteur près de Cannes." Dr. Chapman is to be congratulated on the rediscovery of this species and the identification of its larva, for although Ragonot made the following

note under *francillana* in his own copy of Staudinger's Catalog, "*Smyrnum olusatrum*, *Daucus carota*, *Ferula nodiflora*, Mill.," neither Millière nor Ragonot appears to have published the observation.

1648. LOXOPERA DEAURANA, Peyr.

Cochylis deaurana, Peyr., Pet. Nouv. Ent., II, 101 (1877).¹ *Cochylis deaurana*, Mill., Nat. Sic., V, 70 (1885).² *Loxopera?* *deaurana*, Stgr. and Rbl. Cat. Lp. Pal., II, 94, No. 1648 (1901).³

"17 millim. Du groupe de *Francillana*. Sup. jaune de cuivre (ou rouge jaunâtre), luisant et brillant; extrême marge et frange jaune soufre. Deux minces bandes transverses obliques, parallèles au bord externe (comme chez *Francillana*, F., *Eryngiana*, V. Heyd., etc.); mais à l'inverse de ces espèces, la bande basilaire est intacte, la marginale est largement interrompue.

Un exemplaire pris en avril à l'île Sainte Marguerite, près Cannes" [Peyr. ¹].

Type [? Mus. Paris].

Hab.: S. FRANCE. Ile Ste. Marguerite (Cannes). Larva in stems *Smyrnum olusatrum*, III (*Chapman*). Imago IV ¹ excl. 29, IV—15.V.1901 (*Chapman*).

Loxopera deaurana, Peyr., would appear to be most nearly allied to *ferruginea*, Wlsm., both species have pale ochreous cilia, and the fore-wings suffused with orange-ochreous. Some years since I determined as a possible variety of *deaurana* a specimen [♂ (8128) Mus. Wlsm.] received from Millière as *francillana*, with which it agreed in colour, but the outer band was broken as described by Peyerimhoff. Dr. Chapman has most generously presented his series of *deaurana* to Lord Walsingham, and with 22 specimens before me I can see no tendency to assume the coloration of *francillonana*.

It is possible that this specimen represents yet another species, and I shall hope shortly to make drawings of the genitalia of the species of *Loxopera* yet unfigured.

* 1648 (1). LOXOPERA FERRUGINEA, Wlsm.

Loxopera ferruginea, Wlsm., Ann. and Mag. N. H. (7, s.), VI, 444—5, No. 862 (3), (1900).¹ *Conchylis ferruginea*, Stgr. and Rbl. Cat. Lp. Pal., II, 260, No. 1758 ^{bis} (hujus generis?), (1901).²

Hab.: ASIATIC TURKEY—HALEB—Shar Devesy.¹

Loxopera ferruginea having veins 7 and 8 of the fore-wings stalked, 7 to costa; and 3 and 4 of the hind-wings remote at origin agrees with the type of *Loxopera*, to which genus it was referred by Lord Walsingham, and its suggested removal to *Phalonia*, Hb. (= *Cochylis*, Tr.), is erroneous.—JNO. HARTLEY DURRANT, June 11th, 1901].

Spring notes from South Devon.—In April, in the country about Seaton, Devon, queen wasps (*Vespa vulgaris*, ♀) were very numerous; but now, in the middle of June, wasps are scarce. *Vanessa Io* has been abundant this spring, in Devon and Dorset. *V. urticae* is the only other species that has thus far been visible, and this in fewer numbers.—A. E. EATON, Woodlands, Seaton, Devon: *June 12th*, 1901.

Metopius dentatus, Fab., bred from *Bombix quercus*.—I have much pleasure in recording that Mr. Edwin C. H. Davies, St. Issey, bred *Metopius dentatus* from *Bombix quercus* this spring, the exact date not known, he having found it in his breeding cage on June 6th.—G. C. BIGNELL, Saltash: *June 10th*, 1901.

Odontaus mobilicornis, Fabr., at Woking.—A male of this species was captured here on the evening of May 28th by one of my boys, who found it flying amongst grass close to the ground.* The evening was very sultry, and threatening a storm; many other beetles being also on the wing at the time, as *Trox scaber*, *Hedobia imperialis*, *Melolontha vulgaris*, &c. It will be remembered that Dr. Sharp found an example of the *Odontaus* here on May 13th, 1894, when in my company.† —G. C. CHAMPION, Horsell, Woking: *June 15th*, 1901.

Dryophilus pusillus, Gyll., at Helsby, Cheshire.—On June 1st, 1901, I took this species freely in a wood on the south side of Helsby Hill, Cheshire. The wood is planted chiefly with Scotch fir, but there are a few oaks and spruce firs. The species occurred only by beating the spruce firs, none being found on the Scotch firs. I obtained a total of 155 specimens, 66 being males, and 89 females.—J. HAROLD BAILEY, 128, Broad Street, Pendleton: *June 6th*, 1901.

Licinus depressus, Payk., in North Staffordshire.—In July, 1886, I took a pair of this species, male and female, under a stone at the foot of Bunster, a hill at the entrance to Dovedale, on the Staffordshire side of the River Dove. So far as I am aware, this species has not been recorded as occurring in Staffordshire.—ID.

Aspidiotus articulatus, Morgan, in Costa Rica.—Dr. F. Noack has just sent me examples of this species, found on leaves of coffee in Costa Rica. It is worth mentioning, being the first Coccid reported from that country; in the long list which I published lately in the *Biologia Centrali-Americana*, there is not one Costa Rica record.—T. D. A. COCKERELL, East Las Vegas, N. M., U. S. A.: *May*, 1901.

Vanessa Antiopa, Sc., in the Isle of Wight.—As I was descending a ravine between St. Catherine's Point and Blackgang, a specimen of *V. Antiopa* rose up from a swampy place by the side of a stream. I was so taken aback by the sight of it that I made no attempt to "net" it until too late.

I am glad to be able to report that *Melitæa Cinxia* is more plentiful than it has been—in my experience—for the last twenty-seven years. I have taken two remarkable and beautiful varieties of the male.—H. GOSS, Ventnor: *May 30th*, 1901.

* A second specimen, a female, was caught by myself in the same place on June 21st.

† Ent. Mo. Mag., xxx, p. 103.

Papilio Machaon, L., taken in Hampshire.—On May 25th last I caught a specimen of this butterfly feasting on lilac blossom in my garden at Fern Cottage, Lyndhurst. On first catching sight of it I thought I must be dreaming, but having my small net for *Diptera* with me the matter was soon placed beyond a doubt, and the insect consigned to the killing bottle. It has since struck me, however, that so local a butterfly could hardly have strayed so far from its usual home in the Cambridgeshire Fens without human intervention, and I should like to know if any one lost or purposely turned out any specimens about the date mentioned. The one taken has all the appearance of having just emerged from the chrysalis.—FRED. C. ADAMS, 50, Ashley Gardens, S.W. : June, 1901.

[This opens up an interesting question. Casual specimens taken far outside the limits of the distribution of the species in this country are always justly open to the suspicion of being accidental or intentional escapes. But last year (1900) there were evidences that to our mind sustained the idea of a small sporadic immigration, although the butterfly is not generally supposed to be migratory. So many specimens were taken, and scattered over so large an area, that we can offer no other explanation.—EDS.]

Review.

STAUDINGER (O.) and REBEL (H.). "CATALOG DER LEPIDOPTEREN DES PALAEARCTISCHEN FAUNENGEBIETES. DRITTE AUFLAGE DES CATALOGES DER LEPIDOPTEREN DES EUROPÄISCHEN FAUNENGEBIETES." 8vo. BERLIN (Friedländer und Sohn). V, 1901.

I. Portrait of Staudinger, pp. XXX + (2) + 411 ; II. pp. (1) + 368.

Heft. I. STAUDINGER and REBEL—PAPILIONIDÆ—HEPIALIDÆ [Families, 39 ; subfamilies, 17 ; genera, 764 ; species, 4744]. Heft. II. REBEL—PYRALIDÆ—MICROPTERYGIDÆ [Families, 18 ; subfamilies, 42 ; genera, 483 ; species, 4782].

In the following comparison of the three editions the species in the Addenda have been included, and the totals given in round numbers. Following the plan of the Catalog itself, the *Pyralidæ* are included in the *Micro-Lepidoptera*.

GENERA.

	1861.	Increase.	1871.	Increase.	1901.
Macros ...	388	+ 27 =	415	+ 349 =	764
Micros ...	217	+ 99 =	316	+ 167 =	483
Totals ...	605	+ 126 =	731	+ 516 =	1247

SPECIES.

	1861.	Increase.	1871.	Increase.	1901.
Macros ...	2600	+ 250 =	2850	+ 1900 =	4750
Micros ...	2710	+ 510 =	3220	+ 1740 =	4960
Totals ...	5310	+ 760 =	6070	+ 3640 =	9710

The alteration in title from "europäischen" to "palæarctischen" Faunengebieten is very largely the cause of the great increase in the totals of the present edition. The actual number of species added to the limited European Catalogue could only be ascertained after much calculation, but a considerable proportion of the additions appear to be extra-European species.

A Review of this work cannot be undertaken without long and careful study, but from a merely cursory examination the general impression is that the scheme of classification adopted is a great improvement on that of the second edition. Many references included in that edition are now omitted, *e. g.*, "Stt., I. B.," is frequently eliminated, probably from considerations of space, but these omissions will prevent us from accepting the new edition as a substitute for the second, which for this reason cannot be regarded as obsolete. One very tiresome omission, common to both editions, is the failure to cite the authority for sinking a name as a synonym—such references are certainly of equal importance with the citation of the synonyms themselves. The adoption of index numbers would have rendered it possible to give such information without largely increasing the letter-press, and would have saved younger students much unnecessary research, while all would have been glad to have found such references in the new edition. The date 1818 adopted for Hübner's Verzeichniss in Part II is incorrect, no signature containing *Micros* could have appeared before 1822, probably not until 1826. The printing does not stand out so clearly and so black as in the second edition, owing to the more glossy surface of the paper, and the Indexes will be very trying to those who have not good sight; it is to be regretted that they are printed in smaller type than in the second edition.

All students of the *Lepidoptera* are greatly indebted to the late Dr. Staudinger and to Dr. Rebel for the immense amount of work represented by this Catalog, which, whatever faults it may be found to possess, cannot fail to be of the greatest assistance in systematic and other work, and it will be regretted by all that Dr. Staudinger did not live to receive the congratulations which we are now only able to offer to his collaborator.

Particular attention should be directed to the Addenda and Corrigenda (II, pp. 249—266), for even now it is not known to every one that there were very important corrections and additions on pp. 422—426 of the second edition.

It is to be hoped that all new species and genera will be numbered in accordance with the new Catalog, to enable their location with facility.—JOHN HARTLEY DURRANT: *June 8th*, 1901.

Obituary.

Alexandre Constant.—As briefly announced on the cover of our last No., M. Constant died suddenly on May 13th at his residence, Villa Niobé, Golfe Juan, near Cannes in France. He was 72 years old. He came of a family hailing from the Burgundy District of France, and for many years was in business in the important town of Autun (Saône et Loire) as a banker, as was, we think, also his father before him. Autun is not in a wine growing district, but some miles away he possessed an extensive vineyard, where we first made his acquaintance in the year 1874, working after the fashion of an ordinary labourer, in blouse and sabots. A few days later we proceeded to Autun, and the richly wooded and well watered

vicinity of that town, added entomologically to the hospitality vouchsafed to one who had no further introduction than a formal letter from a mutual friend. A few years later he retired from business, and he spent the rest of his life at his villa at Golfe Juan, devoting himself entirely to Entomology and Horticulture, and he became, to use the words of a well known visitor to Cannes, the chief entomological attraction of that place. Personally he was thin, wiry, and robust, and a keen mountaineer as we proved during a visit with him to the Alps of Dauphiné in 1875, on which occasion he forced the writer of this notice, although much his junior, to "climb down" very considerably. He explored Dauphiné on several occasions, and he also visited Corsica and other localities, always finding novelties, which were mostly introduced in the publications of the "Annales de la Société Entomologique de France," which Society he joined in 1854. Essentially he was a Lepidopterist, and especially a Micro-Lepidopterist, possessed of wide knowledge of habits and a keen eye for differences, and he was in active correspondence with most of the European workers in the same line. (It is possible that a colleague of the writer, who knew him more intimately as a Lepidopterist, may supplement these few words by a more extended notice). He appears to have commenced writing on entomology so long ago as 1855. Outside his papers on novelties in *Lepidoptera*, and notes on habits, &c. (always valuable), his principal publication was probably the "Catalogue des Lépidoptères du département de Saône et Loire" (Autun, 1866), which extended to 368 pp., and was naturally very much more than a mere list of names. He was essentially a field naturalist, and delighted in assisting other entomologists whose opportunities for outdoor work were not equal to his, but who had greater facilities from a literary point of view. When the late M. Ragonot finally settled in Paris, he soon made the acquaintance of M. Constant, to the certain advantage of both.

—R. McL.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: April 15th, 1901.—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

Mr. R. C. Bradley showed a few *Lepidoptera* taken last year, including *Colias Edusa*, *Apilates citraria*, &c., from Bournemouth, and *Catocala nupta* from Swanage. Mr. S. W. Wynn, a series of *Callimorpha Hera* taken by Mr. E. A. Rogers near Dawlish, ranging from yellow through intermediates to red forms; also a series of *Spilosoma lubricipeda* var. *radiata* bred from ova received from Mr. W. Tunstall, of Huddersfield. Mr. J. T. Fountain, a number of insects taken by himself in Jersey last summer, including *Colias Edusa* var. *Helice*, very fine large *Satyrus Semele*, *Asilus crabroniformis* and *Volucella zonaria*, the latter being a very fine large Syrphid not yet known as British. Mr. A. D. Imms, various *Lepidoptera*, including *Polia flavicincta* from Northampton, where he had found it very abundant at sugar, and *Sphinx convolvuli* from Moseley. Mr. G. T. Bethune-Baker, *Vanessa urticae*, with all its geographical forms or races, including vars. *ichuusa* and *polaris*, &c., also specimens of *Colias Edusa*, showing a purple gloss on their wings for comparison. Mr. Colbran J. Wainwright, the following *Diptera*: the two British species of *Sepedon*—*sphageus* from Sutton Park, and *spinipes* from Chalford, Gloucestershire, and three species of *Limnea*, *marginata*

from St. Ives, Cornwall and West Hide, Herefordshire, *rufifrons* from West Hide and West Runton, Norfolk, *naugicornis* from West Runton and Sutton Park, in the latter of which localities it is very common. Mr. A. H. Martineau, the six species of the *helvola* group of the genus *Andrena*: *apicata*, Smith; *lapponica*, Zett.; *helvola*, L.; *ambigua*, Perkins; *fucata*, Smith, and *varians*, Rossi. They are all very closely allied to one another, and he pointed out the slight differences which distinguished them.

May 20th, 1901.—The President in the Chair.

Mr. J. T. Fountain showed a nice series of *Cirrhædia xerampelina*, the greater part bred from Yorkshire larvæ, a few from Derbyshire, and one taken on the Worcestershire side of Birmingham. He also showed *Emmelesia albulata* from Knowle, and *Tæniocampa populeti* from near Birmingham. Mr. R. C. Bradley, a series of *Chrysis ignita* from various localities, Sutton, Wyre Forest, &c., also a few of the much rarer *C. Ruddii*, from Moseley (one), and near Stroud, Glos. (two). Mr. G. T. Bethune-Baker, a number of *Hymenoptera* collected by the late Dr. R. C. R. Jordan. Amongst other interesting things were two *Bombus Smithianus* from Shetland, received from Smith himself. Mr. Colbran J. Wainwright, a few *Oncomyia atra*, from West Runton, Norfolk; also a few of a smaller insect which he said answered in every way to *O. pusilla*, but he doubted the distinctness, as all the characters seemed to be inconstant, and the size alone seemed insufficient to separate them. These latter were from West Runton, Bournemouth, and near Stroud, Glos.—COLBRAN J. WAINWRIGHT, *Hon. Secretary*.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: March 11th.—Mr. R. WILDING, Vice-President, in the Chair.

Mr. F. R. Dixon-Nuttall opened the meeting by giving the Society a most cordial welcome to St. Helen's. Mr. Wilding, in his opening address, said he thought that the new departure of holding occasional meetings in other towns than Liverpool would be conducive to the life and well-being of the Society. The Rev. R. Freeman began his paper by exhibiting and explaining a coloured map drawn by himself, showing the district which the St. Helen's naturalists are working—a district of five miles' radius around the town, which comprises woodlands, hills, mosses, marshes, and pastures. From his own particular section of Simonswood he recorded 180 species of *Macro-Lepidoptera*. The most interesting of these are *Cænonympha davus*, *Notodonta dictæoides*, *Acronycta leporina*, *A. menyanthidis*, *A. alni*, *Mamestra anceps*, *Hadena glauca*, *Heliodes arbuti*, and *Carsia imbutata*. The most abundant species is *Cymatophora duplaris*, whose larvæ occur in thousands on the birch trees. Mr. F. C. Thompson gave his experience of the Knowsley district, which is rich in old woods, mosses, lakes and pond-holes. On the whole, the species are the same as at Simonswood, with the addition of *Agrotis puta*, *Noctua triangulum*, *Dianthæcia capsicola*, *Epione apiciaria*, and *Ennomos erosaria*. Mr. Alfred Jackson read an interesting account of his doings in the Bold district. He stated that he had taken the eggs, larvæ, pupa and imagines of *Odonestis potatoria* in a single hour. He also described with what delight he had captured his first specimens of *Colias Edusa*, an insect he had thought would never have visited this district of smoke. He told an amusing story of a policeman who, attracted by his

lantern, became infected with the entomological fever, and chased *O. sambucata* with his helmet, and thereafter becoming a zealous collector. Dr. J. Cotton read notes on the Eccleston district, and described the sight which may be seen on a favourable August night at Eccleston Mere of thousands of *Xanthias* (*X. cerago*, *silago* and *ferruginea*) sitting on the leaves of the tallows which grow there. To the lists of his colleagues Dr. Cotton added *Thyatira batis*, *Plusia festuæ*, and *Melanippe tristata*. The Chairman proposed a hearty vote of thanks to the St. Helen's naturalists for a most enjoyable and profitable evening, which was seconded by Mr. F. Birch, and carried unanimously. Mr. F. R. Dixon-Nuttall, in his reply, described the St. Helen's parks, and assured the members that the smoke of the factories had much diminished of late years. Refreshments were then partaken of, after which the interesting exhibits of the Rev. R. Freeman, Dr. J. Cotton, Messrs. Thompson, Webster, Critchley, and Alfred, Peter and Herbert Jackson were examined. Mr. Wilding exhibited a case of specimens of *Deilephila galii* reared in 1887. Mr. Pierce, an unique collection of *Vanessa Antiopa*, showing all the variations from the type to the most extreme dark forms. Mr. J. Collins, of Warrington, the pupæ of *Acronycta leporina*, spun up on dead sticks as found by him on the mosses.

April 15th, 1901.—Mr. R. Wilding, Vice-President, in the Chair.

Mr. Wilding again thanked the St. Helen's members who had done so much to make the previous meeting a success. He afterwards referred to the death of Mr. Robert Brown, one of the oldest members, who, although his special study was botany, had always taken an interest in the doings of the Society. The Rev. R. Freeman proposed that the Society adjourn until October. Dr. J. Cotton seconded, but suggested that a field meeting should be held in June at Delamere. The Secretary was deputed to make preliminary arrangements. Mr. C. E. Stott, of Bolton, communicated a paper by Mr. F. H. Day, of Carlisle, entitled, "Notes on the *Coleoptera* of the Cumberland Mountains," in which he gave accounts of the rarer and more interesting of the beetles which find a home on the slopes of Scawfell and its neighbours. Mr. Wilding, who read the paper, said that the species were identical with those of the Welsh mountains, that he had taken many of the insects named on the slopes of Snowdon and the hills around Llangollen, thus affording another proof that when the localities are similar the insects are alike also, though perhaps two hundred miles apart. A discussion on these points was carried on by the Chairman, Messrs. Freeman, Burgess Sopp, Pierce, Cotton and Birch, after which the following exhibits were examined: Mr. Day's case of specimens illustrating his paper, which included that burnished gem *Carabus nitens*; *C. glabratus*, *C. arvensis*, *Pterostichus athiops*, *Aph. lapponum*, and many other rarities by Mr. C. E. Stott; *Bembidium nigricorne* and *Philonthus quisquiliarius*, the latter new to the Liverpool fauna, by Mr. Wilding; *Spongiphora Lherminieri*, a remarkable Orthopteron from Espirito Santo, by Mr. Burgess Sopp. *Phigalia pendaria* and *Acala literana*, by Mr. A. Tippins.—FREDERICK BIRCH, *Joint Hon. Secretary*.

[We have received the Twenty-Fourth Annual Report of this Society (Session 1900), from which it appears that at present it numbers sixty members, thirteen of whom are honorary. The library is not so extensive as it should be, considering the long standing of the Society. The Balance Sheet shows a modest total (under £10) and a small sum in hand. The rest of the brochure of 14 pp. is occupied by the address of the Vice-President, Mr. E. J. Burgess Sopp, on February 14th last, in which many and varied subjects are briefly touched upon.—EDS.]

NEW CORSICAN AND FRENCH MICRO-LEPIDOPTERA.

BY THE RT. HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S., &c.

(Continued from Vol. XXXVI, p. 220).

SYMMOCA, Hb.

2228 (2). SYMMOCA ROSMARINELLA, *sp. n.*

Antennæ whitish cinereous, faintly banded above with brownish fuscous. *Palpi* recurved to a little above the vertex; whitish cinereous, the median joint shaded externally, nearly to the apex, with brownish fuscous, the terminal joint tipped with brownish fuscous, and with a very few brownish fuscous scales scattered over it. *Head* woolly; dirty whitish. *Thorax* whitish cinereous, with some brownish fuscous speckling. *Fore-wings* about three times as long as wide; whitish cinereous, speckled with brownish fuscous; with a small dark brownish fuscous patch at the base of the costa (sometimes continued as a shade along the fold), a similar patch before the middle of the costa, and another beyond the middle; a dark brownish-fuscous spot in the fold, a little before its middle, connected upward and inward with a more or less broken line of brownish fuscous scales, pointing rather obliquely to the origin of the ante-median costal spot, but not connected with it; beyond this is a small brownish fuscous spot at the upper edge of the cell *nearer to the post-median than to the ante-median costal spot*; a tornal spot of the same colour, opposite to the outer costal spot, is diffused upward parallel with the termen, forming a rather conspicuous portion of terminal shading, which also extends around the apex, but is broken into ill-defined spots along the margin; the oblique streak arising from the fold is outwardly bounded by a few pale ferruginous scales, similar scales occurring at the end of the cell between the tornal and costal spots; cilia whitish cinereous, speckled with brownish fuscous scales, especially on their basal half. *Exp. al.*, ♂, 14; ♀, 16 mm. *Hind-wings* and cilia greyish brown. *Abdomen and legs* greyish brown; hind tarsi with indistinct paler spots.

Type, ♂ (80636); ♀ (80638), Mus. Wlsm.

Hab.: S. FRANCE, Beaulieu. Larva, *Rosmarinus officinalis*, 30, IV, excl. 17—21, IX, 1890. Four specimens.

The larva was found feeding in accumulations of dry leaves and rubbish, more or less connected by light webbing, about the stems and branches of *Rosmarinus officinalis* at Beaulieu on April 30th, and four specimens of the moth emerged from September 17th—21st, 1890. I have no doubt this species could be easily found by those who have an opportunity of visiting the promontory which projects from Beaulieu along the eastern side of the Gulf of Villefranche.

This species differs from *signatella*, H.-S., in its tendency to assume a rather darker shade, especially in the hind-wings, in its rather more slender antennæ, in the darkened apex of the terminal joint of the palpi, and very consistently in the position of the small spot on the upper edge of the cell, which in *signatella* is nearer to

the ante-median than to the post-median costal spot; moreover, the pale ferruginous, or ochreous, scaling before the middle and the end of the cell is usually far more conspicuous in *signatella* than in *rosmarinella*.

2228 (4). SYMMOCA OCHREOPICTA, *sp. n.*

Antennæ thick, not tapering; black, with broad yellowish white rings, more distinct beneath than above. *Palpi* black, much sprinkled with white on their inner sides; the median and terminal joints tipped with white. *Head* blackish, with a few white scales. *Thorax* blackish, sprinkled with white. *Fore-wings* black, sprinkled with white scales in the form of three transverse bands, one near the base, one about the middle, and one at three-fourths from the base—these are in no way clearly outlined or defined, but are merely indicated by the somewhat limited distribution of the scattered white scales; a strong yellow-ochreous streak starting from near the base follows the upper edge of the fold through the first and second band of white sprinkling and terminates about the lower angle of the cell; cilia dark smoky grey, with a few white scales scattered along their base. *Exp. al.*, 10—11 mm. *Hind-wings* tawny fuscous; cilia smoky grey. *Abdomen* greyish fuscous. *Legs* greyish fuscous; hind tarsi with four white annulations, the anterior and median tarsi also annulate.

Type, ♂ (82093), Mns. Wlsm.

Hab.: CORSICA, Corté, 27, V, 1896; 13, VI, 1898. Twenty-four specimens.

This species resembles *quadrifariella*, Mn., in the three colours represented in the fore-wings, and perhaps somewhat also in the area of their distribution, but in Mann's species the white bands are more continuous and more clearly defined, certainly not consisting of merely scattered scales over the predominating dark ground-colour; moreover in the true *quadrifariella* the white cilia at once distinguish it from my species, the antennæ of the ♂ are more slender and the palpi much whiter. A ♂, one of the three specimens taken by Mann in 1855, is now before me labelled "*Symmoca quadrifariella*, Mann, *Z. bot.* 55, 563;" "*Corsica*, Mann, *lit.* 8/55, No. 22," and it should be impossible to confuse the two species although the yellowish streak along the fold is scarcely traceable in the type and may have become somewhat effaced. My species has also distinctly narrower wings than *quadrifariella* and the hind-wings as well as the fore-wings are much darker.

2228 (6). SYMMOCA DELICATELLA, *sp. n.*

Antennæ moderately slender, slightly serrate; yellowish cinereous, shaded with fuscous. *Palpi* cinereous, the median joint shaded externally with fuscous nearly to its apex, the terminal joint with a fuscous shade around the middle—more

strongly expressed externally. *Head* greyish fuscous above, face yellowish cinereous. *Thorax* whitish cinereous, with brownish fuscous dusting. *Fore-wings* narrow, elongate, about four times as long as wide; bluish white, much dusted with brownish fuscous, especially along the costa and around the apex; at the base of the costa is a brownish spot, another below the costa at about one-third, another below the fold beyond one-third, and between these two an elongate spot on the upper edge of the fold, scarcely farther from the base than the one below it, is diffused outward nearly to a smaller spot at half the wing-length, a little below the middle; beyond this are two spots placed at the upper and lower angles of the cell respectively, a marginal series of similar spots extending around the apex and termen (to the number of three costal, and three terminal, with a faint indication of one tornal); cilia whitish cinereous, clouded with brownish grey, especially towards the tornus, and sprinkled along their basal half with brownish fuscous scales. *Exp. al.*, 12 mm. *Hind-wings* shining sericeous, greyish; cilia brownish grey, with a slight ochreous tinge along their base. *Abdomen* greyish, anal tuft inclining to ochreous. *Legs* yellowish grey; hind tarsi slightly spotted with greyish fuscous.

Type, ♂ (84094), Mus. Wlsm.

Hab.: CORSICA, Corté, 15, VI, 1899. Unique.

Allied to *oxybiella*, Mill., but the arrangement of the spots is quite different; these form an outwardly angulated oblique line instead of a comparatively straight one, and are quite devoid of the accompaniment of ochreous scales, moreover, the hind-wings are far more shining and more grey.

2233 (1). SYMCOCA PERPYGMÆELLA, *sp. n.*

Antennæ stout, simple; yellowish grey. *Palpi* dull stone-grey, the median joint shaded nearly to its apex, the terminal joint with a slight shade round its middle. *Head* and *thorax* stone-grey, the latter slightly bestrewn with darker scales. *Fore-wings* stone-grey, thickly bestrewn with pale greyish fuscous scaling; with five blackish spots (sometimes scarcely distinguishable), one below the costa at one-third from the base, a smaller one below the fold beyond one-third, another a little beyond this above the fold, and two at the upper and lower angle of the cell respectively; there are also one or two costal and one or two terminal spots before the apex; cilia stone-greyish. *Exp. al.*, 9–10 mm. *Hind-wings* dull grey; cilia stone-greyish. *Abdomen* and *legs* stone-grey.

Type, ♂ (84539), Mus. Wlsm.

Hab.: CORSICA, Punta Parata, 7, VI, 1899. Three specimens.

This very small species (taken on the wing among *Staticæ* and *Frankenia* at Punta Parata) can at once be distinguished from any other described species by its size. It approaches perhaps most nearly to *undecimpunctella*, Mn., but the arrangement of the spots, when these are visible, is distinctly different, and the hind-wings are much darker.

BORKHAUSENIA, Hb.

2261 (2). BORKHAUSENIA SUBGILVIDA, *sp. n.*

Antennæ slightly serrate towards the apex; pale cinereous with narrow fuscous rings. *Palpi* recurved, not reaching above the vertex; pale cinereous, shaded with greyish fuscous externally. *Head* yellowish grey. *Thorax* pale greyish fuscous. *Fore-wings* pale cinereous, evenly suffused with pale greyish fuscous, with three darker fuscous spots which are rather large and diffused; the first on the middle third of the fold, somewhat elongate-ovate; the second larger and more diffused, on the cell straight above the first; the third at the end of the cell, diffused downward towards the dorsum; cilia pale greyish fuscous. *Exp. al.*, 18 mm. *Hind-wings* greyish; cilia pale greyish fuscous. *Abdomen* cinereous at the base, pale ochreous beyond. *Legs* cinereous, with a slight ochreous tinge.

Type, ♂ (84089); ♀ (84087), Mus. Wlsm.

Hab.: CORSICA, Corté, 13—15, VI, 1893. Two specimens.

2264. BORKHAUSENIA LAVANDULÆ, Mn.

n. syn. = *ardosiella*, Cnst.; = *pulverisquamis*, Wlsm.

Æcophora lavandulæ, Mn., Verh. ZB. Ver. Wien, V (1855), Abh., 562—3 (1855);¹ Stgr. and Wk., Cat. Lep. Eur., 117, No. 1859 (1861);² Stn., Tin. S. Eur., 117, 122, 340 (1869);³ Stgr. and Wk., Cat. Lp. Eur., 307, No. 2264 (1871).⁴ *Æcophora ardotiella*, Cnst., Bull. Soc. Ent. Fr., LVIII (6 s.), IX (1899), cxxv (1889);⁵ Ann. Soc. Ent. Fr., LIX (6 s.), X (1890), 10, Pl. I, 6 (1890).⁶ *Borkhausenian pulverisquamis*, Wlsm., Ent. Mo. Mag., XXXIV, 133—4 (1898).⁷ *Borkhausenian lavandulæ*, Wlsm., Ent. Mo. Mag., XXXIV, 171—2 (1898).⁸

Types, ♂, *lavandulæ*, Mn., Mus. Vienna; *ardosiella*, Cnst., Mus. Cnst.; *pulverisquamis*, Wlsm., Mus. Wlsm.

Hab.: CORSICA^{3—5}—Ajaccio, 17, VI, 1899; Corté, 22—27, V, 1896⁷, 10, VI, 1898, 15, VI, 1899; Lazarethspitze, larva *Lavandula staechas*, V, excl. 10—12, VI, 1855^{1, 3}.

In 1896 I took two specimens of an *Æcophorid* on the mountains in Corsica, which I described under the name *Borkhausenian pulverisquamis*,⁷ but subsequently identified from Mann's description as *Æcophora lavandulæ*, Mn. In a note⁸ I associated these two names with that of *Æcophora fuscifrontella*, Cnst., thinking that his description must also apply to this same insect.

In 1899 I took two more allied species, also in Corsica, and being thrown into considerable doubt as to the proper identification of Mann's and Constant's species (the latter author having published

two *Æc. ardosiella* and *Æc. fuscifrontella*), I first sent specimens of my three distinct species to Dr. Rebel at Vienna for comparison with Mann's type. Dr. Rebel confirmed my suspicions, and returned my *Borkhausenia pulverisquamis* as identical with *Æcophora lavandulæ*, Mn. I then sent the same three species to M. Constant, who kindly returned with them his types of *Æcophora ardosiella* and *fuscifrontella*. I am thus enabled to clear up the confusion for which I am responsible, and to make the following corrections with due apology:—

1. *Borkhausenia fuscifrontella*, Cnst., is a distinct species, and must not be confused with
2. *Borkhausenia lavandulæ*, Mn., but this latter is the same as *Æcophora ardosiella*, Cnst., and *Borkhausenia pulverisquamis*, Wlsm.
3. My third species is distinct, and is described above as *B. subgilvida*, 2261 (2).

2264 (1). BORKHAUSENIA FUSCIFRONTELLA, Cnst.

Æcophora fuscifrontella, Cnst., Ann. Soc. Ent. Fr., LIII (6 s.), IV (1884), 262, Pl. X, 24 (1885).¹

Type, ♂, Mus. Cnst.

Hab.: CORSICA—Corté, V;¹ Vizzavona, 11, VI, 1899.

The explanation of the revival of this name is given above under *B. lavandulæ*.

2280 (2). BORKHAUSENIA REDUCTA, *sp. n.*

Antennæ (biciliate 2½) yellowish white, annulate with black. *Palpi* black, the apex of the median joint broadly yellowish white. *Head* dirty whitish. *Thorax* blackish, the ends of the tegulae yellow. *Fore-wings* pale yellow, fading to white, with a short basal patch, two transverse fasciæ and an apical blotch blackish; the basal patch is slightly angulated outward below the costa and except for one or two dark scales along the costa is disconnected from the second black band which is slightly oblique, dilated toward the fold and thence attenuated toward the dorsum; after a few dark costal scales the next dark fascia is dilated on the costa and thence continued to the tornus, but somewhat broken at its lower extremity by the pale ground-colour; the apical patch does not touch the termen immediately below the apex, but is connected with some dark scaling on its lower half; cilia smoky fuscous, mixed with yellowish cinereous. *Exp. al.*, 10—12 mm. *Hind-wings* not so broad as the fore-wings; brownish grey, cilia concolorous. *Abdomen* brownish grey. *Legs* whitish, with greyish fuscous shade-bands across the tarsi.

Type, ♂ (84024), Mus. Wlsm.

Hab.: CORSICA, Vizzavona, 11, VI, 1899; Corté, 14, VI, 1898. Five specimens.

This species is smaller than *ragonotella*, Cnst., which it greatly resembles. The chief points of difference (which are uniform through the series) are to be found in the extension of the pale ground-colour to the costa between the basal patch and the first fascia, in the attenuation of the first fascia towards the dorsum (whereas in *ragonotella* it is there somewhat dilated) and generally in the less clearly defined limits of the darker and paler portions of the wing. Indeed, in the first two particulars it approaches more closely to *luctuosella*, Dp., but in regard to the third it differs from it quite as much as from *ragonotella*, moreover in *luctuosella* the white, or yellowish white, bands are distinctly narrower than in *reducta*, and the hind-wings are less gradually attenuated to the apex. In size it is perhaps hardly larger than *luctuosella*, but it could scarcely be mistaken for that species through the absence of the distinct contrast between the colours and markings which gives to the former a particularly neat and compact appearance.

BLASTOBASIS, Z.

2303 (2). BLASTOBASIS (?) EVANESCENS, *sp. n.*

Antennæ (♀) with strong pecten; fawn-ochreous, barred above with brown. *Palpi*, terminal joint about half the length of the median; pale fawn-ochreous. *Head* and *thorax* pale fawn-ochreous. *Fore-wings* narrow, elongate, about four times as long as wide; pale fawn-ochreous, with a dusting of faintly brownish scales, a slight indication of a brown spot in the fold at a little beyond one-third from the base, with a few collected brown scales above and beyond it on the disc, followed by a more clearly defined spot at the end of the cell, this sprinkling of brown scales being somewhat more profuse beyond than before it; cilia pale fawn-ochreous. *Exp. al.*, 16 mm. *Hind-wings* rather shining, fawn-greyish; cilia pale fawn-ochreous. *Abdomen* and *legs* pale fawn-ochreous.

Type, ♀ (84150), Mus. Wlsm.

Hab.: CORSICA, Vizzavona, 12, VI, 1899. Unique.

A somewhat abnormal form, agreeing with *Blastobasis* in having only seven veins in the hind-wings, but differing in the remote origin of 5 from 3+4.

In the absence of the ♂ I cannot venture to describe it as the type of a new genus.

ICONISMA, Wlsm.

2304. ICONISMA? ANTHOPHAGA, Stgr.,

a ANTHOPHAGA, Stgr. + ANTHOPHAGA, Stgr.

n. syn. = *stachadella*, Cnst.

Blastobasis anthophaga, Stgr., Berl. Ent. Zts.. XIV, 319, No. 102

(1890) ; Stgr. and Wk. Cat. Ip. Eur., 309, No. 2304 (1871). *Symmoca stæchadella*, Cnst., Ann. Soc. Ent. Fr., LIII (6.s.) IV (1884), 260—1, Pl. X, 23 (1885).

M. Constant, in describing his *Symmoca stæchadella*, calls attention to the basal joint of the antennæ being “renflé,” and suggests that this character, together with certain differences in the neururation, might justify the creation of a genus separated from *Symmoca*, Hb. These differences are such as would remove *stæchadella* to the neighbourhood of *Blastobasis*, Z.

I have bred numerous specimens of *stæchadella*, Const., from larvæ taken at Agay, near Cannes, in the shoots of *Lavandula stæchas*, and after a careful comparison with the description of *anthophaga*, Stgr., also bred from *Lavandula*, was unable to find any reason for separating the two supposed species. The opinion that they are the same has since been confirmed by the reception of a specimen of *anthophaga* from Staudinger, and I find in the late M. Ragonot's copy of Staudinger's Catalog a MS. note showing that he was also aware of their identity.

I hesitate to separate from *anthophaga* a rather larger and more clearly marked form bred in some numbers from similar larvæ feeding on the same plant at Corté in Corsica. These at first sight would appear to be distinct, the first costal shade being somewhat more widely separated from the discal shade beyond and below it than in the French form, but as this is the only difference observable I prefer to regard them as local forms of the same species.

β. ANTHOPHAGA, Stgr. + ROSMARINELLA, var. n.

Two specimens bred from *Rosmarinus officinalis* from the neighbourhood of Beaulieu in 1890 are extremely similar to *anthophaga*, Stgr. The larvæ were taken in April among refuse accumulated by other larvæ around the stems and among branches of the plant. These did not emerge until August, therefore much later than the Spanish or Cannes specimens. The difference in the larval habit is also remarkable, and if it should be proved that retarded emergence owing to starvation is not the real reason of their diminished size (barely 12 mm.) I should suggest for them the name *rosmarinella*, but the only divergence from *anthophaga* is in the almost obliterated markings, giving a generally blurred appearance to the wing, in the somewhat greyer (less yellow) cilia of the hind-wings, and in the smaller size.

Type, ♂ (80801) ; ♀ (80802), Mus. Wlsm.

Hab. : S. FRANCE, Beaulieu. Larva *Rosmarinus officinalis*, 30, IV, excl. 2--17, VIII, 1890. Two specimens.

COLEOPHORA, Hb.

2528 (1). COLEOPHORA DIANTHIVORA, *sp. n.*

Antennæ without a basal tuft ; white. *Palpi* with a scarcely appreciable short tuft projecting beneath from the end of the median joint. *Head* and *thorax* fawn-grey above, whiter at the sides. *Fore-wings* brownish fawn-grey, the margins narrowly white throughout ; a white streak from the base following the line of the fold is slightly dilated at the end of the cell and attenuated to the apex beyond it, a short branch reaching the dorsum on the fold ; above it are three short white streaks along the veins, all terminating in the outer half of the costa—these originate from the margin of the cell and are thus detached from the longer streak below them ; on the outer half of the cell is some black speckling along the upper margin of the median streak, somewhat less of the same speckling occurring along its lower margin and extending further towards the base, there are also a few black scale-specks between the costal streaks and at the apex ; cilia whitish grey, with a faint fawn-brownish shade running along their basal half, mixed with white scales on their extreme base. *Exp. al.*, 14—17 mm. *Hind-wings* pale shining brownish grey ; cilia pale fawn-brownish. *Abdomen* brownish grey. *Legs* whitish, the tibial hairs pale fawn-brownish.

Type, ♀ (84877) ; ♂ (84878), Mus. Wlsm.

Hab. : S. FRANCE, Vernet (Pyr. Or.). Larva *Dianthus*, 26, V, excl. 16—17, VII ; 1—25, IX, 1899. Six specimens.

Nearly allied to *odorariella*, Mhlg. and Frey, but it is slightly darker in colouring and has less black speckling between the veins ; the hind-wings are also slightly darker.

The case is of the same shape as that of *odorariella*, cylindrical, with trigonal apex and sloping mouth-aperture ; it is slightly streaked lengthwise with pale cinereous and pale brownish grey, and somewhat dusted with fuscous atoms ; it has, however, no small pebbles or fragments of plants attached, as in the case of *odorariella*.

The larva differs in its habits from *dianthi*, H.-S., so far as one can judge from finding it feeding on the leaves of a species of *Dianthus*, in the tufts at the base of the old flower-stems rather than among the seed-capsules as in that species.

Two specimens were bred in July, four others in September.

(To be continued).

A LIST OF THE *TORTRICIDÆ* AND *TINEINÆ* OF THE PARISH
OF BONHILL, DUMBARTONSHIRE.

BY J. R. MALLOCH.

(Concluded from page 36).

TINEINÆ.

Lemmatophila phryganella, Hb., scarce, Crofthugen.

Exapate congelatella, Clerck, one specimen on Levenside Moor at an elevation of 800 feet.

Diurnea fagella, Fb., very abundant everywhere.

Diplodoma marginepunctella, St., rare, Quarry Wood.

Ochsenheimeria bisontella, Zell., very common, flying in the daytime, Levenside and Napierston.

Scardia cloacella, Haw., very common everywhere.

Monopis imella, Hb., not uncommon, Ladyton, Nobleston, and Quarry Woods.
—*rusticella*, Hb., very common.

Tinea tapetzella, L., Nobleston and Dillichip.—*pellionella*, L., common in houses.—*fuscipunctella*, Haw., very common.—*pallescentella*, Sta., common.—*lapella*, Hb., scarce, Nobleston.—*semifulvella*, Haw., not uncommon, Dumbarton Road, Quarry Woods, and Crofthugen.

Phylloporia bistrigella, Haw., common among birch, Quarry Woods and Crofthugen.

Tineola biselliella, Hm., common in houses.

Lampronia quadripunctella, Fb., not uncommon, Quarry Woods and Crofthugen.
—*rubiella*, Bjerck., common among raspberry bushes, Crofthugen and Quarry Woods.

Incurvaria masculella, Fb., common, Napierston and Quarry Woods.

Micropteryx calthella, L., not uncommon, Quarry Woods.—*Seppella*, Fb., very common, Levenside.—*aureatella*, Scop. (*Allionella*, Fb.), scarce, Quarry Woods.

Eriocrania semipurpurella, St., scarce, Quarry Woods.—*unimaculella*, Zett., scarce, Crofthugen.—*subpurpurella*, Haw., abundant everywhere.

Nemophora Schwarziella, Zell., very common everywhere.—*pilella*, Fb., scarce, Crofthugen.

Swammerdamia combinella, Hb. (*apicella*, Sta.), scarce, Nobleston.—*cæsiella*, Hb., var. *griseocapitella*, Sta., among birch, Quarry Woods.—*oxyacanthella*, Dup., very abundant among hawthorn.

Prays Curtisellus, Don., common on ash; the types and var. *rustica* are about in equal numbers.

Plutella maculipennis, Crt. (*cruciferarum*, Zell.), very abundant, the autumn brood most variable.—*Dalella*, Sta., scarce, Levenside Moor.

Cerostoma vittella, L., most abundant in July and August, 1900. Specimens occurred until mid-September. Sometimes as many as three dozen were seen on a single elm trunk. The pupa cases were everywhere projecting from the chinks of

the bark. Very variable. Dumbarton Road and Dillichip.—*radiatella*, Don., sometimes common, Quarry Woods and Crofthugen.—*costella*, Fb., generally common, Crofthugen and Levenside.

Harpiteryx xylostella, L., common on honeysuckle, Crofthugen and Levenside.

Depressaria costosa, Haw., not uncommon on furze, Nobleston and Levenside.—*assimilella*, Tr., not uncommon on broom, Quarry Woods and Ladyton.—*arenella*, Schiff., not uncommon, Quarry Wood.—*applanata*, Fb., generally difficult to obtain in the autumn, but common in the spring; comes to fallow bloom; generally distributed.—*ciliella*, Sta., not uncommon, Nobleston.—*heraeliana*, De Geer, very common, larva in flower heads of *Heracleum*; pupates in the stems; F. and C. Railway, near Jamestown, Nobleston, &c.

Gelechia ericetella, Hb., very abundant on all the moors.—*mulinella*, Zell., common among broom, Dillichip.—*diffinis*, Haw., not uncommon, Levenside, Dillichip and Strathlorm.—*similis*, Sta., var. *confinis*, Sta., Levenside.—*terrella*, Hb., very common everywhere.—*politella*, Sta., not uncommon, Levenside Moor.—*affinis*, Dougl., Dumbarton Road.—*acuminatella*, Sircom., Levenside.—*dodecella*, L., common among pines on Levenside Moor.—*triparella*, Zell., scarce, Levenside.—*proximella*, Hb., common, generally taken at rest on trunks of silver birch.—*notatella*, Hb., scarce, among fallows, Crofthugen and Quarry Woods.

Xenolechia aethiops, Westw., not uncommon on Levenside Moor in April and May; when on the wing is difficult to distinguish from a water-fly, and is easily overlooked.

Aristotelia tenebrella, Hb., common, Quarry Woods and Auchencarroch.—*stipella*, Hb., var., *naviferella*, Dup., common, Alexandria.—*pulveratella*, H.-S. (*intaminatella*, Sta.), scarce, Levenside Moor.

Chelaria Hübnerella, Don., very common among silver birch, Crofthugen and Quarry Woods.

Pleurota bicostella, Clerck., Levenside Moor.

Ecophora sulphurella, Fb., very common among rotten timber, generally distributed.

Borkhausenia fuscescens, Haw., not common, Quarry Woods, Nobleston and Levenside.—*pseudospretella*, Sta., abundant everywhere.

Endrosis lacteella, Schiff. (*fenestrella*, Sta., nec Scop.), too common everywhere.

Atemelia torquatella, Linn., Levenside.

Glyptiteryx thrasonella, Scop., very common among rushes, generally distributed.—*Haworthana*, St., not common, Levenside Moor.—*Fischeriella*, Zell., not uncommon on the embankment of the F. and C. Railway near Jamestown, may be swept off the grass.

Heliozela sericiella, Haw., very common, 1900, Quarry Woods.—*resplendella*, Dougl., scarce, Levenside.

Argyresthia ephippella, Fb., common, Ladyton, Jamestown, &c.—*nitidella*, Fb., common, Quarry Wood, Crofthugen.—*semitestacella*, Curt., common in Crofthugen, but seems to be confined to this part of the district.—*spiniella*, Zell., common, Levenside.—*albistria*, Haw., common, Nobleston and Auchencarroch.—*conjugella*, Zell., common among rowan, generally distributed, specimens very

dark.—*retinella*, Zell., very common on birch, Crofthugen, &c.—*curvella*, L., scarce, Levenside Moor.—*pygmælla*, Hb., common among sallows, Quarry Woods and Crofthugen.—*Gædartella*, L., very common and generally distributed; about 50 per cent. of the specimens examined showed a tendency towards the var. *literella*, Sta., but the actual variety is somewhat scarce. I have taken suffused specimens of the variety at Levenside and Auchencarroch.—*Brockeella*, Hb., very common, Levenside and Auchencarroch.

Cedestis farinatella, Dup., very common on pine, Levenside Moor.—*gysselinella*, Dup., scarce on pine, Levenside Moor.

Ocnrostoma pinariella, Zell., abundant on pine, Levenside Moor.

Gracilaria alchimiella, Scop. (*Swederella*, Sta.), abundant everywhere.—*elongella*, L., not common, sometimes occurs with the costa yellowish-white, Quarry Woods and Crofthugen.—*tringipennella*, Zell., scarce, Auchencarroch.—*syringella*, Fb., common, occurs on pine and ash, Dillichip and Quarry Woods.—*auroguttella*, St., not common, Levenside.

Ornix anglicella, Sta., not uncommon, Levenside and Quarry Woods.—*betulæ*, Sta., very common on birch, Quarry Wood and Levenside.—*torquillella*, Sta., not uncommon, Quarry Woods.—*scoticella*, Sta., not scarce, Quarry Woods.—*Loganella*, Sta., scarce, Quarry Woods, on birch.

Coleophora spissicornis, Haw. (*Fabriciella*, Vill.), Tullichewan.—*pyrrhulipennella*, Fisch., not uncommon on Levenside Moor, on heath.—*albicosta*, Haw., common everywhere on furze.—*discordella*, Zell., scarce, Levenside.—*murinipennella*, Fisch., common throughout the district.—*cæspititiella*, Zell., common among rushes.—*artemiscolella*, Brd., scarce, Levenside.—*juncicolella*, Sta., not uncommon, Levenside Moor, on heath.—*nigricella*, St., Crofthugen.—*siccifolia*, Sta., Crofthugen.—*vitisella*, Grz., Levenside.—*vininetella*, Heyd., Crofthugen.—*lutipennella*, Zell., very common, Crofthugen.—*limosipennella*, Fisch., Crofthugen.

Epermenia chærophyllellus, Göze., Crofthugen and Quarry Woods, larva found on the undersides of *Heracleum* leaves, specimens very dark, not common, sometimes met with after hibernation.

Laverna lacteella, St., very scarce, Dumbarton Road.—*Hellerella*, Dup., not uncommon on hawthorn, Nobleston and Napierston.

Chrysoclista Schrankella, Hb., scarce, Dumbarton Road.—*aurifrontella*, Hb., scarce, Levenside.

Schreckenstenia festaliella, Hb., not uncommon among bramble, Quarry Woods.

Cataplectica fulvигuttella, Zell., Crofthugen, scarce.

Elachista apicipunctella, Sta., very common and generally distributed.—*albifrontella*, Hb., abundant everywhere.—*atricomella*, Sta., scarce, Crofthugen.—*kilmunella*, Sta., very common where it occurs, but apparently local, flies in the daytime; occurs plentifully on one spot on the Moor (Levenside) at an elevation of about 800 feet.—*nigrella*, Hb., and *obscuraella*, Sta., common and generally distributed.—*zonariella*, Tgstr., not common, Crofthugen.—*adscitella*, Sta., scarce, Quarry Woods.—*rhynchosporella*, Sta., not uncommon, Levenside.—*eleochariella*, Sta., Levenside Moor.—*serricornis*, Logan, Quarry Woods.—*rufocinerea*, Haw., very common and generally distributed.—*subatbidella*, Schl., Crofthugen and Levenside.—*argentella*, Clerck, common everywhere.

Tischeria complanella, Hb., common, Croftthugen and Quarry Woods.

Lithocolletis irradiala, Scott, scarce, Croftthugen.—*vacciniella*, Scott, Levenside Moor.—*cerasicolella*, H.-S., scarce, mines in the leaves of wild cherry, Croftthugen.—*spinicolella*, Kol., common on sloe, Quarry Wood.—*oxyacanthæ*, Frey., most abundant everywhere on hawthorn; most of the mines examined on the hedges bordering the road between Bonhill and Dumbarton contained parasites, but the hedges dividing fields yielded a very small percentage of affected specimens.—*sorbi*, Frey, very common on rowan, also subject to the attacks of parasites. There is a large form which occurs in the Quarry Woods which agrees but poorly with the types of *sorbi*, or even with the specimens which I have bred. There is a species belonging to the group containing the four foregoing species which occurs on *Pyrus malus*, but so far I have failed to obtain the imago. I have not the least doubt that it is a different species from those recorded.—*coryli*, Nicelli, Croftthugen.—*fuginella*, Zell., very abundant on beech.—*ulmifoliella*, Hb., not uncommon on birch, much darker than southern specimens.—*spinolella*, very common on willow, darker than English specimens.—*quercifoliella*, Fisch., abundant on oaks.—*messaniella*, Zell., not common, Dillichip; have bred this species from beech.—*corylifoliella*, Haw., scarce, Croftthugen.—*betulæ*, Zell., scarce on birch, Quarry Wood.—*alnifoliella*, Hb., very abundant on alder, Croftthugen and Levenside.—*Heegeriella*, Zell., not uncommon, Quarry Woods and Levenside.—*Cramerella*, Fb., common everywhere on oak.—*emberizapennella*, Bouché, not common, occurs on honeysuckle, Croftthugen and Quarry Woods.—*Frölichella*, Zell., not uncommon on alder, Croftthugen.—*Nicellii*, Zell., abundant among hazel in Quarry Woods and Croftthugen.—*stettinensis*, Nicelli, Croftthugen.—*Kleemannella*, Fb., not uncommon, Croftthugen, one specimen uncommonly dark.

Lyonetia Clerckella, L., not uncommon, one specimen of the suffused variety off rowan, Croftthugen and Levenside.

Cemistoma spartifoliella, Hb., abundant on broom.—*laburnella*, Heyd., scarce, Dumbarton Road.

Opotegea crepusculella, Fisch., Levenside Moor and Quarry Woods, scarce.

Bucculatrix nigricomella, Zell., Levenside.

Nepticula atricapitella, Haw., Croftthugen.—*ruficapitella*, Haw., Croftthugen.—*Fletcheri*, Tutt, Croftthugen.—*argyropeza*, Zell. (*apicella*, Sta.), Croftthugen.—*floslactella*, Haw., common everywhere.—*argentipedella*, Zell., scarce, Croftthugen.—*plagicolella*, Sta., Croftthugen.—*gratiosella*, Sta., off Hawthorn, Dalmonach.

Trifurcula immundella, Zell., very common everywhere.—*pulverosella*, Sta., scarce, Levenside.

Most of the species in the above list have been identified by either Mr. C. G. Barrett or Mr. E. R. Banks. I therefore desire, in conclusion, to thank them for their kind assistance, and beg to express the hope that the list, however incomplete it may be, will prove of service to those interested in the distribution of our *Micro-Lepidoptera*.

Bonhill, Dumbartonshire :

May, 1901.

REVISION OF THE NOMENCLATURE OF MICRO-LEPIDOPTERA.

BY THE RIGHT HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S., &c.,
AND
JOHN HARTLEY DURRANT, F.E.S., MEMB. SOC. ENT. DE FRANCE.

(Continued from Vol. XXXVI, p. 4).

“HEUSIMENE, Steph.”!

This name has long been used in British Lists for a genus containing the single species *Tortrix fimbriana*, Hw. It was accepted without question by the authors of “The Accentuated List of the British Lepidoptera,” 70 (1858), who gave the derivation thus:—“*Heusimene*, Ste., . . . εἶν, to burn, μῆνη, the moon: the forewings having an *ashy lunule* on the inner margin.” This ingenious derivation however is as fictitious as *Heusimene* itself. There never was a genus *proposed* under the name *Heusimene*, it is a mere *lapsus calami* for *Hemimene*, Hb. (ἡμι=half; μῆνη=moon).

“HEUSIMENE, Hübner?” Steph. Ill. Br. Ent., Haust. IV, 96-7 (1834), type *fimbriana*, Hw.

Stephens referred this genus to Hübner with a “?” not because he doubted the generic name being Hübner’s, but because he was uncertain whether *fimbriana* could be regarded as congeneric with the types of *Hemimene*, Hb. In his abstract of the British *Lepidoptera* contained in Hübner’s Verzeichniss, Stephens [Ill. Br. Ent., Haust. IV, 418 (1835)] enumerated *Heusimene* 3627—3634, 3636. The names cited are identical with those included in *Hemimene* by Hübner, 3627—3637.

It is, therefore, obvious that Stephens or the compositor (probably the latter) read the first “*n*” of *Hemimene* as “*us*.”

Thus originated “*Heusimene*, Stephens.”!

HEUSIMENE, Steph., List Br. An. BM., X, Lp. 52 (1852).

Stephens in this publication attributes “*Heusimene*, Stephens,” to himself as a valid genus, ignoring its evolution as detailed above, although he used its correct form “*Hemimene*, Hübner,” in a sub-generic sense under more than one of his own generic titles.

A name whose only claim to validity is based on a mere *lapsus calami* (or error of P.D.) can have no right to recognition, and †*Heusimene* (Hb.), Steph., can only be treated as if it had been printed correctly *Hemimene*, Hb.

PAMMENE, Hb.

= HEMIMENE, Hb. (†HEUSIMENE, Steph.); = PHTHORBASTIS, Ld.

Type 1, *Tortrix trauniana*, Schiff. (Hb., 1826).

PAMMENE, Hb., Verz. Schm., 378 (1826).

1. **trauniana**, Schiff. (Hb., 38). 2. *aurana*, F. (= *mediana*, Schiff., Hb., 179).

Hübner, Verz. Schm., 394 (1826), constituted *aurana*, F. (= *mediana*, Schiff., Hb., 179), the type of *Eucelis*, Hb., thus leaving **trauniana**, Schiff., as the type of *Pammene*, Hb.

†*PAMENE*, Stgr. and Rbl. Cat. Lp., Pal. II, 123 (1901).

Type 2, Pyralis populana, F. (Steph., 1852).

HEMIMENE, Hb., Verz. Schm., 377—8 (1826).

1. *amplana*, Hb., 24. 2. *petiverella*, L. (= *montana*, Schiff., Hb., 37). 3. *dorsana*, F. (= *lunulana*, Hb., 35). 4. *inquinitana*, Hb., 43 (*jacquiniana*, Hb., Verz., 3630). 5. *discretana*, Wk. (= *dorsana*, Hb., 36). 6. *compositella*, F. (= *gundianana*, Hb., Verz., 3632, *gundiana*, Hb., 42). 7. **populana**, F. (= *ephippana*, Hb., 246). 8. *argyran*, Hb., 46. 9. *lathyrana*, Hb., 207 (= *leguminana*, Z., Stgr. Cat.). 10. *sequana*, Hb., 44. 11. *permixtana*, Schiff. (Hb., 187).

[*PSEUDOTOMIA*, Stph.—B.] †*HEUSIMENE* (Hb.), Stph. Ill. Br. Ent., Haust. IV, 99—102 (1834) [‡*HEMIMENE*, Hb.].

1. *petiverella*, L. 2. *dorsana*, F. (= *lunulana*, Stph.). 3. **populana**, F. 4. *sequana*, F.

†*HEUSIMENE*, Steph., Ill. Br. Ent., Haust. IV, 418 (1835).

[*HALONOTA*, Stph.—C.] *HEMIMENE* (Hb.), Stph. List Br. An. BM., X, Lp., 47—8 (1852).

11 (*Type*). **populana**, F.

= *PHTHORBLASTIS*, Ld., Wien. Ent. Mts., III, 125, 370—1, Pl. II, 12 (1859).

13 (*Type*). **populana**, F. (= *ephippana*, Hb., Ld.), and nineteen species, six of which were unknown to Lederer.

Though Lederer enumerated twenty species as belonging to this genus, there is no difficulty in ascertaining which he regarded as the type, for in a foot-note (p. 370) he explained the derivation of the generic name thus: "*Phthoroblastis*—Von *φθειρω* ich verderbe, und *βλαστος* Knospe, Trieb (von der Lebensweise der einzigen mir bekannten Raupe dieser Gattung: *ephippana*)"; **populana**, F. (= *ephippana*, Hb.), is consequently the type of this genus.

Type 3, Tortrix fimbriana, Hw. (Stph., 1834).

*†*HEUSIMENE*, Hb. [‡*HEMIMENE*, Hb.], Stph., Ill. Br. Ent., Haust. IV, 96—7 (1834).

1 (*Type*). **fimbriana**, Hw. Stph., List Br. An. BM., X, Lp. 52 (1852).

(To be continued).

FURTHER NOTES ON SOUTH AFRICAN LEPIDOPTERA.

BY FRANCES BARRETT; EDITED BY C. G. BARRETT, V.P.E.S.

(Continued from Vol. 36, p. 146).

[In the following notes the original observations, extracted from letters received from my sister, are within inverted commas. My own remarks thereon are within square brackets.—C. G. B.]

Henucha smilax.—"I was staying with a friend at Umtata, and we had all been out together. When coming in through the garden my friend said, 'Here is a caterpillar for you.' It was on a lilac bush, and on searching the bush we found four more like it, and three of another colour, but of the same form, all handsome caterpillars. The five were hairy, dark red, or indian-red, with tiny black rings enclosing white dots all over the red area, and on each segment a dark ridge on which the hairs grew; head orange colour. The remaining three had a clear yellow or white ground colour, with black ridges. In size, shape, and the hairs or spines, all were alike; also they all fed together and spun up together, and I can see no difference in their cocoons, which are very pretty, ornamented with pieces of the leaves of the lilac. The five red larvæ produced the smaller specimens, males; the three yellow or white ones, females. I meant to figure them, but failed to do so before they spun up. I fed them on the lilac, and after my return home my friend sent more of this to feed them upon, but they were nearly full grown, and soon spun up. The lilac cannot be their sole food since it never grows wild here."

[Later.] "I was again at Umtata at the end of May, and saw another caterpillar which a lady was feeding on privet. The pattern is most beautiful, the black markings being of different shapes on the indian-red ground, somewhat like a Paisley shawl pattern, the spines or hairs black; the dots white or yellow. There was *Smilax*, two species, one a creeper, the other larger, in the garden, and these plants also grow in the forests, but the larvæ do not seem to be found upon them."

[Still later.] "I have received this moth and am sending it. It is spoiled, but it has instructed a whole school! I have secured the chrysalis case. The females had that curious mealy-looking powder in rings round their bodies when they emerged."

[This is so very remarkable a moth that it deserves some detailed notice. In the male the hind margin of the fore-wings is so hollowed out, and the apex is so abruptly squared, that it looks much as though some mischievous child had operated upon it with a pair of scissors. The hind-wings are narrow, with the anal angle produced. The antennæ are very short, strongly pectinated to less than one half their length, the apical half simple. The female is much larger, with short antennæ, simple or rather minutely notched, and the wings broader and more filled out. In both sexes there is on the fore-wings, at the apex of the discal cell, a large three or four lobed shining diaphanous spot, divided by the nervures, and on the hind-wings a smaller and more horse-shoe-shaped similar transparent spot. The "mealy-looking powder" referred to by my correspondent is worthy of special attention. It has very much the appearance stated, but actually consists of scales much larger, and especially far broader, than the usual scales, strap-shaped, or almost spatulate

under a good lens, placed in irregular tufts along the hinder edge of each segment of the abdomen in the female moth, and also in numerous isolated tufts scattered over the upper surface of both fore and hind-wings, on or between the nervures; and since these peculiar scales are all of a very pale drab colour, and are placed upon a chocolate-red surface, they give the insect a curiously powdered appearance. They are to be found in equal plenty on the under-side, especially along the costa of the fore-wings and the corresponding margin of the hind, but also scattered generally over the under-surface of the wings and along the edges of the segments of the body beneath. In the male these scales, though not absent, are few, sometimes not visible on the abdomen at all, or if present, only on the edges of two or three segments; and on the wings they exist only as a very few minute tufts on the dark chocolate surface. On the under-side also they are very sparingly distributed. We have here, therefore, a most peculiar form of ornamentation, not, as is the usual case, confined to the male, but existing far more strongly in the female. So far as at present appears, here also is an instance of complete distinction in both colour and markings between the larva of the male and that of the female. The pupa is dark brown, altogether without gloss, but covered with rough sculpture, the appearance under a lens of rough bark, especially rough upon the abdominal segments, which also are covered with raised points; cremaster excessively short, broadly squared, edged with six turned-up points; limb covers very compact. The cocoon is very hard, formed of strong silk binding together pieces of leaf and rubbish.]

Saturnia apollonia.—"These moths are generally found sitting on long grass or low bushes by day, or under a bush; but three were caught on the wing at night. I had gone rather late with a lantern to a flowering bush, and noticed something white, apparently a feather, rolling along the ground, but upon my holding the light nearer it went faster, and I promptly netted it. It was a curious sensation suddenly to find that the object was alive. Its soft movements reminded me of a white owl on the prowl. We came across another at night in the garden flying low, and I had a run after the third in the ploughed land by lantern light; it was only just skimming the ground, but went pretty fast. I have found one roosting on a tree, so that I thought it was a little bird asleep. Its tints are very lovely. I think that these must come from buried chrysalids, as they are so generally found in the long grass under a bush, indeed S—— has found a chrysalis bare, as you will see, half in and half out of the ground."

[This pupa-skin, the moth from which was sent, is extremely thick, its dorsal region being strongly arched; its general colour pitchy-black, surface dull from abundant close sculpture, on the wing and limb-covers, of very closely placed wrinkled eminences, those on the antenna covers arranged in a beautiful cross-pattern, the dorsal and abdominal segments equally dull from very minute pitting, each segment sharply ridged, those of the abdomen on both margins; cremaster black, thick, with glossy dimples and short upright projections on the upper-side tapering off to a short, broad, blunt spike. I certainly expected to see a cocoon for this rather typical *Saturnia*, but evidently it is allied in this respect to other South African species of the genera *Gynanisa* and *Nudaurelia*. A curious point in connection with this moth is worthy of notice. The usual transparent spot in the fore and hind-wings, which is in this species quite round and doubly ringed with black,

is also obscured in each case by a cloud of black scales arranged most beautifully in rows of minute ripples, so that only the portion nearest the discal cell is actually diaphanous.]

Nudaurelia arabella ♀.—“When E—— went to Libodi with her father she picked up a very ugly, heavy, earthy-looking caterpillar with a thick ridge across every segment, and brought it home with difficulty in a handkerchief. It was put into a tin with some earth, and buried itself before I could figure it. It was quite smooth, without hairs or spikes. It remained in the chrysalis state for some months, in the earth, quite naked.”

[This pupa-skin, which unfortunately became broken up on the journey, is of great size, and almost massive; it has a sharp ridge inside at each segmental division, and the three free abdominal segments have ridged divisions more than an eighth of an inch deep, so that, being opened out during emergence, the segments are separated externally by great deep circular gashes. The exterior surface is stained with the earth in which it was buried, and is dark chocolate-brown, very dull, roughened with fine wrinkled eminences and hollows, looking under a magnifier like the bark of a tree, the limb covers very compact, the antenna covers marked by rows of raised knobs; spiracles large and elongated; dorsal segments ridged behind; abdominal segments strongly so before and behind, and these ridges cross-ribbed; intermediate surface of the segments very rough; cremaster conical, running to a sharp black spike. The inside surface of the thoracic portion of this pupa is rather shining, and of a pretty silvery slate colour. On the inside of the anal segment, attached to the skin, are two round black egg-like bodies, possibly of an excrementitious character.]

Euchromia amœna.—“I found this species in numbers, very locally, flying round some blossoming and very thorny trees. They looked like animated whorls in the bright sunshine, and I thought at first that they were beetles, they spun round with such rapid vibration of the wings before settling; from this cause they soon became damaged. Early morning or else just before sunset was the best time for meeting with them, and they were only to be found for a fortnight.”

Syntomis Kuhlweini.—“This species I find by day upon blossoming trees, especially about the thorny trees frequented by the last species; some also I have caught by the mulberry hedge when it was in blossom, and others about a flowering juniper tree. It is a great favourite of mine. I have never seen it at night, and its special time of flying seems to be just before sunset, though on one cloudy grey evening they were sweeping too and fro with deliberate flight between a juniper and an orange tree. When settled it is sluggish, and sometimes will allow one to carry it on a twig or a grass stem. At Annshaw I used to catch it in the day time on the blossoming lemon-thyme in the garden.”

Syntomis fulvescens.—“This species was always found in the grass, and also only in the day time. Its appearance is always more dull or dim than that of *S. Kuhlweini*, its hyaline spots being tinted with yellow-brown.”

Thyretes caffra.—“This species was fairly common at Annshaw, but was only to be caught at night. Usually it came to the light at the verandah. I do not remember ever to have seen it by day, it just came to the light at a white-washed wall when we put a lamp upon the verandah table. It was very easy to catch.”

Neosymploca nebulosa.—“These were caught just at the New Year. Edward

noticed them flying in numbers in the hot sunshine in a cultivated 'land,' where we secured specimens. Since then I have come across one or two at intervals, and early in May they were again flying gaily in groups among the long grass down by the river, looking as though they were at play. I used to see them occasionally at Annshaw about the *Lantana*, generally several at a time. When caught the body is bright green, and of a very pulpy appearance. I have now reared one from a chrysalis found upon a common veldt weed, but have another spun up on grass, and I believe that we found it at Annshaw upon wild asparagus."

[The body of this curious moth, which is closely allied to the genus *Procris*, becomes pale yellow-brown when dry, with an empty appearance; its wings are semi-transparent with a smoky tinge in the male, transparent and colourless in the female, except that there is in each a dark brown dot at the base of each fore-wing; the thorax is dark brown powdered with white scales, but the antennæ are black and more conspicuous than any other part of the insect. My sister does not seem to have noticed the larva, but the cocoon, which is fixed upon the stem of some slender plant, is ovate, pure pearly-white like an exquisite rounded shell; while the portions of the pupa-skin protruding from it after the emergence of the moth are thin, filmy, and absolutely colourless.]

Dasychira (Liparis) pulvereæ, Hampson, n. sp.—"I find this species in the shrubberies at night, usually by lantern light, sitting upon the trees and bushes, and sometimes they will fly off and grovel upon the ground. Sometimes they are flying close to the blossoming aloes. Once I found a male settled with its wings widely spread on an aloe leaf, and on another occasion one certainly seemed to be feeding on the aloe honey. From a female found here in October or November I had a batch of eggs. These hatched in a little over a week. When quite young the larva is yellow and has a very long tail tuft. Before spinning up the yellowish-green dorsal tufts changed to bright brown, the white remaining unchanged. At the beginning of December they were already full grown, their growth, like their movements, being very rapid, and before the last had spun up the first moth had emerged. These fed up on mimosa, and those found out of doors were upon the same food. They spun up among the rubbish on the surface of the earth."

[The male of this species reminds one in some degree of that of *L. dispar*, but is rather smaller. Fore-wings very pale brown, with transverse lines, dots, and cloudings of dark umbreous, the most conspicuous marking being an oblique band which crosses a dark discal spot, and attains a similar costal blotch before the apex. The hind-wings are cloudy grey-brown, and the abdomen and thorax are slender. The female is much stouter, but not larger in expanse, its fore-wings are more narrow, white, with faint transverse cloudings and a darker discal spot, the hind-wings white or whitey-brown. Thus the sexes differ very greatly. I can see no trace of a tongue, and am inclined to think that the proximity of one of the moths to the aloe-honey must have been purely accidental. From the figure sent the full grown larva is not unlike those of our native "Vapourer" moths; the head yellow, the tuft of hairs on each side of it long, very slender, or placed closely together, feathered toward the tip, dark brown; the body dark purple-brown, with four thick erect, "blackening-brush" shaped, yellow tufts, followed by a partial white dorsal stripe and a thick white tuft edged with brown, directed obliquely backwards over the anal

segment, which also is embellished with very long spreading brown hairs directed backwards; spiracular region apparently bright red, with orange-red tufts of lateral hairs mixed with others of a brown tint. The pupa is very glossy, bright red-brown, its dorsal area covered with scattered hairs.]

(To be continued).

PYRALES, TORTRICES, AND TINEINA OBSERVED ON A VISIT
TO THE ENGADINE IN 1900.

BY T. A. CHAPMAN, M.D., F.Z.S., &c.

The smaller species of *Lepidoptera* we met with have been overhauled by Mr. Barrett, who has given me names for them; a few species I also sent to Mr. Durrant. The latter were *Tortrix rigana*, sporadically both at Guarda and Pontresina, *Chlidonia decimana*. *Phalonia aurofasciana*, rather rubbed, both at Guarda and Pontresina. *Lampronia rupella*, Guarda and Pontresina, and *Tinea Rosenbergerella*.

Scoparia centuriella, two specimens, near Pontresina, *muralis* and *sudetica*, abundant in the house, coming to light, *valesialis*.

Crambus falsellus, *alienellus*, *Coulonellus*, *dumetellus*, *luteellus*, *furcatellus*, *radiellus*, *maculalis*, upper wooded region near Pontresina. *Pempelia dilutella*. *Asarta æthiopella*, not rare at higher levels flying with species of *Hercyna*, but difficult to see and catch. *Herbula cespitalis*, *Pyrausta porphyralis*, *Botys nigralis*, *anguinalis*, *aerialis*, *alpinalis*, *rhododendronalis*, *pascualis*, *nebulalis*. *Catastia marginæa*, common. *Agrotera nemoralis*, extremely abundant in many of the lower meadows at Pontresina. *Hercyna Schrankiana*, less common than *phrygialis* and *alpestralis*, which often abounded. *Phycis carbonariella*.

Cnephasia Wahlbomiana, var. *alticolana*, common. *Tortrix mini-strana*, *lusana*, especially at the opening of the Heuthal, abundant. *Euchromia mygindana*, common. *Aphelia pratana*, *Conchylis deutschiana*, two specimens, one from Guarda, one Pontresina from the higher ground. *Penthina turfosa*, one specimen, Guarda. *Sericoris conchana*, *palustrana*, *bipunctana*, *cespitana*, *Halonota cirsiana*, *Stigmonota coniferana*, *Dicrorampha alpestrana*, *Petiverana*, var. ?. *Scia-phila hybridana*. *Simaëthis Fabriciana*.

Incurvaria vetulella, Pontresina. *Lampronia rupella*, *Nemophora pilulella*, *Adela associatella*, *rufimitrella*, *Gelechia lentiginosella*?, *tenebrella*, *viduella*, *diffinis*, *perpetuella*, *libertinella*, *Æcophora rhætica*, Pontresina, *Æ. sulphurella*, *Anchinia daphneella*, *Heydenia auromaculælla*, *Butalis fallacella*?, *Chauliodus scurellus*, *Coleophora flavaginella*. *Pterophorus tetradactylus*, *Platyptilia Zetterstedtii*, *Stenoptilia coprodactylus*.

Betula, Reigate: May, 1901.

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DESCRIPTIONS OF FOUR NEW SPECIES OF *ANOPHELES* FROM INDIA.

BY LIEUT.-COL. G. M. GILES, M.B., F.R.C.S., I.M.S., RETD.

On comparing the collection brought home, with the enormous mass of material in the British Museum, recently arranged and described by Mr. Theobald, we found the four additional new forms described below.

One of them is specially interesting for the way in which it mimicks *Culex*, as not only does the insect closely resemble the common grey Indian gnat, *C. fatigans*, Wied., but it also copies the attitude of the rival genus when resting, the females in especial, sitting "humped up" in exactly the same way as those of the type genus of the family. So much is this the case, that on arriving at night at the rest-house where I first met with the species, I was completely "taken in" by the fraud, and felt quite safe in dispensing with mosquito curtains. On this account the species has been named *An. culicifacies*. Two of the others come from the Berars, on the Dakhan Plateau, and the third appears to be a purely hill species hailing from the Nihilgerri Hills. Although equalled by some American examples of *An. maculipennis*, it is certainly the largest of our Indian forms, and has accordingly been named "*gigas*."

ANOPHELES GIGAS, *sp. n.*

Wing with the costa black, interrupted by a comparatively small fulvous spot opposite the basal half of the ant. fork-stem; in addition to which there is a large apical spot, and the base of the wing is generally pale, except the actual base of the costa, which has here a black length cut in two by a minute white dot, so that the general appearance is that of two large black triangular areas, with their bases on the costa, the inner part of the wing being mainly pale, with but few black vein-spots. The internal fringe is pale at the apex and generally, towards the base, and the intervening dark portion shows pale patches at the longitudinal junctions. In the ♂ the whole wing is much lighter, there is an additional light spot near the apex, and the entire fringe is yellow. Thorax of a deep chocolate-brown ground colour, the dorsum covered with a velvety, greyish bloom, so arranged as to leave bare a median and a pair of lateral darker lines. Abdomen dark brown, with some lighter hairs, and showing on the terga some lighter tomentum, like that on the thorax.

♀.—General coloration deep chocolate throughout, the head with the vertex and frontal tuft yellowish. Antennæ two-thirds the length of the proboscis, which is distinctly longer than the quite unbanded palpi. Halteres with pale stems and dark knobs.

♂.—Altogether lighter, the palpi golden-brown, with dense terminal tufts of hairs to the joints, about equalling the proboscis in length. Most of the upper

tarsal joints show quite distinct lighter yellow apical bands, though they are quite imperceptible in the ♀. His fore-ungues, besides the usual accessory tooth, have a strong additional one close to the base, representing probably the other claw, which appears wanting, those of the mid and hind legs are simple and symmetrical.

Length, 9—10 mm.

Hab. : Sent me by Dr. Price, I.M.S., Retd., of Conoor, Nehilgerri Hills, where the species appears fairly common, though it does not appear to occur in the plains, Conoor lying at an elevation of over 6000 feet above the sea level.

ANOPHELES CULICIFACIES, *sp. n.*

Wings with the costa black, except at the apex, interrupted by four small straw-coloured spots, which grow progressively smaller from base to apex, all involving the second long vein; there is another distinct light spot over the cross veins, and three more on the principal bifurcations of the long veins, but in the main the wing is very dark, and the fringe shows no pale patches. Tarsi unbanded, nearly black. Thorax dark-grounded, covered with yellow scales, so arranged as to show a median and a pair of lateral dark bare lines. Abdominal segments conspicuously basally banded with yellowish, being in the fresh state completely clothed with yellowish and deep brown scales. Head black, with whitish fork scales on the vertex, but with the frontal tuft ill marked. Antennæ, ♂, dark brown, about three-fourths the length of the proboscis; palpi of ♂ black, about the length of the proboscis, with yellowish rings on the last two articulations, and a lighter tip; of ♀, black, except the whole of the last joint, and, two bands on the next two articulations, which are straw-coloured, and as the penultimate joint is long, the second is well down towards the base. Legs black throughout, except minute yellow bands on the apices of the tibæ.

When seen at rest this mosquito presents a close resemblance to *C. fatigans*, Wied., as, apart from the conspicuous abdominal banding, the female habitually sits humped up like a *Culex*, while even the males keep the body no more than parallel to the surface they rest on.

Length, 3·5—4 mm.

Hab. : Hoshangabad, Central Provinces, and the Benars, India.

ANOPHELES LISTONI, *sp. n.*

Wing with the costa black, including the actual base, with four yellow spots distinct, but much smaller than the intervening black portions, the largest light area being that quite at the base; there is also an apical spot; the remaining long veins are mainly black, but all of them show short lengths of white scales, and a line of these over the cross veins, combined with one of the costal spots, forms a distinct light stripe across the wing. The fringe is dark, except at the apex, and indistinct paler patches opposite one or two of the longitudinal functions. Tarsi dark, unbanded. Thorax and abdomen much as in *A. funestus*, mihi. Head black, with a robust frontal tuft; forked scales mostly dark in the ♀, but with many white ones behind in the ♂. Palpi of ♀, black, with two narrow rings and a minute tip of white, slightly shorter than the proboscis; those of the ♂, as spots, as the proboscis, black-tipped, but with two whitish bands.

This species a good deal resembles *An. funestus*, but has an additional white spot close to the base of the costa, and there are no sharply defined interruptions of the internal wing-fringe, as in that species. Length, 3.5—4 mm.

Hab. : Ellichpur, in the Berars, India.

ANOPHELES THEOBALDI, *sp. n.*

♀.—Wing jet black, with the costa interrupted by five obvious white spots, the basal dots being nearly as large as the spots further out; in addition, there is an apical spot, and the other long veins, though mainly black, are elaborately marked with white lengths, and the fringe is interrupted at the junctions of all the long veins and their branches. The last two hind tarsal joints, with the apices of the other three, are pure white; and the first two of the mid, and the first three of the fore tarsals, are apically white-banded. The thorax and scutellum are sooty grounded, with broad lines of white scales, two lateral, and two sub-median. Abdomen sooty, nude, with brownish hairs.

The head is black, with a bifid white frontal tuft, the nuchal crown white, and the nape black-scaled. Antennæ black, with whitish verticils. Proboscis sooty. Palpi intensely black, with the whole terminal joint, and minute apical rings on the next three joints, snowy white. Halteres with white stems and black knobs. Legs brindled with white scales throughout, the white preponderating on the lower surfaces, with white knee spots and a large sub-apical white patch on the femora; the tibiæ and first tarsal joints elaborately white-ringed, especially so on the mid legs. Length, about 3 mm.

This species was sent me first by Lieut. Glen Liston, I.M.S., from Ellichpur, in the Berars, with a note pointing out its distinctness from any species mentioned in the first edition of my "Handbook of Gnats and Mosquitos," and though, on first sorting my collection, I was inclined to regard it as a dark variety of *An. Jamesii*, its distinctness was at once detected by Mr. Theobald when we came to compare my collection with the types of that species in the Museum. It differs from that species in possessing the additional apical wing-spot, although the wing is generally darker, the second long vein being entirely black, and in but two, instead of three, of the last hind tarsals, being all white.

Hab. : Ellichpur, in the Indian Berars, and also taken in my house at Shahjahanpür, N.W.P., on October 19th, 1900.

London: July, 1901.

Rare Diptera in Herefordshire.—During Whit week I was collecting on the Herefordshire side of the Malvern Hills, chiefly near to West Malvern. Amongst other things I obtained was a specimen of *Brachypalpus bimaculatus*, Mcq. This species is only recorded by Mr. Verrall in his recent work from five localities, and I believe only one or two specimens have been found in each place, so that it remains a very rare species at present. One of the localities was Ledbury, in Herefordshire, not more than eight or ten miles away from where I took it this time. I also found *Cheilosia* the jointa, Fall., not uncommon on wild garlic in a very limited area at

one spot. The species has only been found in a very few places at present. Col. Yerbury has expressed the opinion, I believe, that it occurs wherever wild garlic grows freely; I had not had an opportunity of testing this before until I found it in this one spot as soon as I looked for it. The garlic, however, grew in most parts of the district, but I never saw the *Cheilosia* anywhere else during the ten days I was there.—COLBRAN J. WAINWRIGHT, Handsworth, Staffs.: June 23rd, 1901.

Lipara tomentosa, Mcq. (= *rufitarsis*, Lw.), and two rare *Tipulidæ* at Seaton.—On June 24th I was at Seaton and took a specimen of the above rarity. The other specimen I have was taken at the Decoy Pond in the New Forest by my father on June 2nd, 1831. It was named for him by the late A. H. Haliday. At the same place I took *Orimarga virgo* and *Thaumastoptera calceata*.—C. W. DALE, Glanvilles Wootton: July 1st, 1901.

[Mr. Verrall kindly informs us that *Lipara tomentosa*, Mcq., is "an absolute synonym" of the common *L. lucens*, Mg. He adds that Mr. Dale's insect may possibly be *L. tomentosa*, Perris, *nec* Mcq., in which case it might be *L. rufitarsis*, Lw. Mr. Verrall justly adds that it is not unusual to ask for distinguishing characters in critical cases such as this.—EDS.].

Two rare Diptera in the New Forest.—During a visit to the New Forest in May I was fortunate enough to take two *Pocota apiformis*, Schrk. (♀ ♀), and four *Psilota anthracina*, Mg. (♂ ♂). Both the former were to some extent chance captures, as the first was taken on the 21st basking in the sun on a leaf of sweet chestnut, and the second was found on the 25th under the glass coping in my garden, but in each case hawthorn trees were near at hand, although not in bloom at the earlier date. Mr. Verrall describes the ♀ as "very similar to the male," but this is not the case with my specimens, the bands on both thorax and abdomen being pale golden-yellow instead of "tawny or reddish-orange," which gives them more the appearance of *Tolucella bombylans*, L., than *Criorrhina berberina*, F., so much so that I mistook the first to be a very early *bombylans*, and only netted it because it seemed a variety, and remained under this impression until setting it the next day. As soon as the trees were well out I mostly turned my attention to hawthorn blossom, and although I met with no more *P. apiformis*, secured two *P. anthracina* on the 25th and two more on the 28th. This is rather a sluggish fly, and in two instances they fell, when taken, to the bottom of the net, apparently feigning death.—FRED. C. ADAMS, 50, Ashley Gardens, S.W.: June, 1901.

Odontæus mobilicornis, F., at Tunbridge Wells.—I found a very lively male of this insect in my garden water tank this morning. It is the first time I have seen the species alive.—G. LEWIS, 87, Frant Road, Tunbridge Wells: July 12th, 1901.

Albinic aberration of Bactra lanceolana, Hb.—On August 22nd, 1892, I had the good fortune to capture at Studland, in the Isle of Purbeck, a remarkable albinic aberration of *Bactra lanceolana*. The fore-wings are pure white, partially tinged with cream, especially towards the base, with some small pale brown spots and marks

on the margins, and two or three more on the surface of the wing, of which the largest is beyond the middle, and indistinctly represents part of the ordinary V-shaped dark mark. The hind-wings are spotless white, while the head, palpi, thorax, patagia, abdomen, and anal tuft, are creamy-white, but the antennæ have the usual dark annulations. The individual is a rather small male. Pale ochreous and whitish examples of *lanceolana* are sometimes met with, but this is by far the whitest aberration that I have ever seen.—EUSTACE R. BANKES, Norden, Corfe Castle: *June 20th*, 1901.

Argyresthia Atmoriella, Bnks., in the Isle of Purbeck.—It affords me especial pleasure to be able to record the capture of *Argyresthia Atmoriella* in the Isle of Purbeck, for not only is it an interesting and welcome addition to the Purbeck and Dorset Lists, but it has not so far been recorded from anywhere in this part of England, nor indeed from outside the counties of Norfolk, Kent and Surrey. My previous efforts to meet with it in this district had met with no success, but on the 5th of this month I succeeded in finding it in one spot, where, by diligently beating some young larch trees on several occasions I have secured a nice, though limited, series. It is well established there, but by no means too plentiful, for I have had to be fully satisfied with four or five specimens as the result of an hour's energetic work under favourable conditions. The moth seems very sluggish by nature, and although several long evenings up till dark have been spent in its haunts, I have never yet seen it on the wing of its own accord, though I should imagine that its flight-time is in the evening. It will be remembered that the larva and its habits were discovered by Lord Walsingham, and described by him in Ent. Mo. Mag., x, 142 (1899).—ID: *June 20th*, 1901.

P.S.—On June 21st I netted a specimen of *A. Atmoriella* on the wing at 7.40 p.m. The evening was calm and sultry, with an overcast sky. I had just been beating larches a few yards away from the tree beside which it was taken, but it is most improbable that I had disturbed it: apart from this, its flight was brisk and business-like, being markedly different from the sluggish flight of all those that I had beaten out, including the three specimens captured during an hour and a half spent in working for the species on that same evening.—E. R. B.: *July 1st*, 1901.

Note on Metzneria littorella, Dgl.—I am glad that my note on this species in the May No. of this Magazine appeared just in time to enable Mr. Sydney Webb to give us the interesting information, published *ante* pp. 149-50, about the original British specimens captured by the late Mr. S. Stevens. The third specimen given away by Mr. Stevens, of which Mr. Webb says that he does not know the present owner, seems clearly to be the one in my own collection that I purchased at the sale of the late Mr. J. Jenner Weir's collection in May, 1894; it was included in Lot 208, though its name did not appear in the sale catalogue, and on my showing it to Mr. Stevens, he told me he had no doubt that it was one of his Ventnor specimens. Mr. Weir, following his usual custom with the smaller fry, had mounted it on a cork block, and cut off the pin a little above the thorax. The specimen given by Mr. Stevens to the late Mr. J. B. Hodgkinson is now in Mr. W. H. B. Fletcher's collection.

It is interesting to learn from Mr. Webb that the original specimens were captured as early as April. My inaccurate assertion (*ante* p. 121) that they were taken "early in May" was based on a comparison of the statements by Mr. Douglas [Trans. Ent. Soc. Lond., N. S., i, 67 (1850)], whose description of *littorella* as *n. sp.* was published two years after its first discovery, and Mr. Stainton [Ins. Brit. Lep. Tin., 128 (1854)], that the insect was taken by Mr. Stevens "in May," with Mr. Stevens' own remark (*in litt.*, 7/10/86) that the "end of April, or early in May, is the time."

In the absence of any evidence to support it, it seems to me most probable that Stainton's inclusion, in Man. ii, 341, of Birkenhead as a locality for *littorella* is untrustworthy, and that it was based on an error of identification on the part of the correspondent who furnished him with the list of *Lepidoptera* reputed to occur in that neighbourhood.—ID.: *June 20th*, 1901.

Hemerobius concinnus, var. *quadrifasciatus*.—Referring to Mr. Kenneth J. Morton's interesting paper in the current number of the Ent. Mo. Mag., p. 163, Mr. Morton has evidently overlooked a "List of the *Neuroptera* and *Trichoptera* of Yorkshire" I published in the "Naturalist" of April, 1897, where *this form only* is recorded as occurring at Sledmere. In that locality it is abundant, but I have never seen the typical form there; and the "variety" is so different in appearance that ever since I first took it I have had a strong suspicion that it must be a distinct species.—GEO. T. PORRITT, Crosland Hall, near Huddersfield: *July 13th*, 1901.

[Neither at home nor on the continent have I ever found the two "forms" together. On the continent *quadrifasciatus* is by far the more abundant according to my experience, and in the high alps it is almost black. Dr. Reuter and Mr. Morton draw a comparison with *H. nervosus*, but to my mind confusion is far more likely with *H. Mortoni*; cf. Ent. Mo. Mag., April, 1899, p. 80.—R. McLACHLAN].

A new Russian Entomological Journal.—There has been commenced at Jaroslavl in Russia a Journal of which the French title is "Revue Russe d'Entomologie." Each part will be published every two months, and will contain two to three sheets (or 16 to 20 sheets annually). It is devoted to general Entomology, and articles may be published in Russian, Latin, French, German, or English. There are six editors, some of whom are well known in connection with the Russian Entomological Society at St. Petersburg. The price is 8 shillings (English), and communications should be addressed to M. N. R. Kokonyew, Dvorienskaia 24, Jaroslavl, Russia. Sold also by Friedländer & Son, and F. Dames, in Berlin. With the exception of the "Horæ Societatis Entomologicæ Rossicæ," no other publication exclusively devoted to Entomology exists in the Russian Empire, so there should be room for this.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *June 17th*, 1901.—Mr. H. WILLOUGHBY ELLIS, Vice-President, in the Chair.

Mr. C. J. Wainwright showed a specimen of the rare Dipteron, *Brachypalpus bimaculatus*, Mcq., taken at West Malvern in Whit week, 1901. Mr. Ellis, the

following *Coleoptera*: *Cychrus rostratus* from Dovedale; *Pterostichus striola* with its eggs, also from Dovedale; *Phytodecta rufipes* and *Apoderus coryli* both from Knowle; and *Elater pomorum* from Cannock; also the curiously coiled up leaves in which are laid the eggs of *Attelabus curculionoides* and *Deporäus betulæ*. Mr. A. D. Imms, an immature specimen of *Phyllodromia germanica* taken from the University Buildings, Birmingham, and said that he believed it to be the first occurrence of the species in the Midlands. Mr. A. H. Martineau said that he had taken ♂ and ♀ of the rare ant, *Myrmecina Latreillei* at Cannock Chase, the nearest place from which he had known it formerly being Selsley, Glos. Mr. R. C. Bradley, *Anisopteryx æscularia*, taken from the city boundaries near Cannon Hill. Mr. G. W. Wynn showed long series of *Tæniocampa gracilis*, *T. instabilis*, and *T. rubricosa*, all taken on sallows at Hampton in Arden this year, also *Cucullia chamomillæ* from Marston Green.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: April 25th, 1901.—Mr. H. L. FREMLIN, F.E.S., President, in the Chair.

The evening was devoted to a special lecture by Mr. R. Kearton on "Wild Life in Nature," illustrated by a large number of original lantern slides.

May 9th, 1901.—The President in the Chair.

Mr. Step exhibited a number of living specimens of the fungus inhabiting a Coleopteron, *Mycetophagus quadripustulatus*, from the banks of the Brent. Mr. Kemp, between seventy and eighty cases made by larvæ of Caddis flies (*Trichoptera*), of the genera *Phryganea*, *Limnophilus*, *Seriocostoma*, *Anabolia* and *Molanna*, from the neighbourhood of London and Oxford; numbers of examples were composed wholly or partly of freshwater shells. Mr. Enock, living nymphs of *Anax imperator*, *Æschna cyanea*, *Brachytron pratense*, *Calopteryx splendens*, and *Erythromma najas*, from the Black Pond, Esher and Byfleet. Mr. Edwards, a species of trap-door spider from Jamaica, together with its nest; a large species of dragon-fly from Bogota, and a specimen of the lantern-fly, *Fulgora lantenaria*. Mr. Clark, photographs of the ova of *Tæniocampa stabilis* and *Ennomos tiliaria*. Mr. Turner, a living nymph of *Anax imperator*. Dr. Chapman, living specimens of *Thais polyxena* bred from larvæ taken in the South of France. Mr. Fremlin, several cultures of Bacteria obtained from the dead pupæ exhibited by Mr. Adkin several meetings ago. A discussion ensued. Mr. W. Bateson, F.R.S., gave an address on "Recent Advances in the Study of Heredity," and exhibited numerous specimens in illustration.

May 23rd, 1901.—Mr. W. J. Lucas, B.A., Vice-President, in the Chair.

Mr. Robert Adkin exhibited living examples of the Coleopteron *Pyrophorus noctilucus*, from Jamaica, and contributed notes. Mr. F. M. B. Carr, a large number of species of *Lepidoptera* taken or bred this year, mainly from the New Forest, including, *Drymonia chaonia*, *Anticlea nigrofasciata*, *Cidaria psittacata*, *Asphalia flavicornis*, *A. videns*, &c. Mr. Step, a considerable number of lantern slides, illustrative of his address on "Spring Notes." Some were from photographs taken at Oxshott during the Society's Field Meeting.—HENRY J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: May 1st, 1901.—The Rev. Canon W. W. FOWLER, M.A., F.L.S., President, in the Chair.

Mr. C. G. Barrett exhibited for Mr. H. W. Vivian a specimen of *Xylophasia*

lateritia, Hufn., a species not hitherto recorded in the British Islands, taken in South Wales by Mr. W. E. R. Allen, also *Deiopeia pulchella* from the same district; *Dianthecia luteago*, var. *Barrettii*, from one of the islands off the Glamorganshire coast; and varieties of *Eupithecia virgaureata*, much blackened, *E. lariciata*, *E. satyrata*, and *E. exiguata*, taken in the county of Glamorgan by Mr. Vivian. Mr. M. Jacoby, specimens of *Helicopris gigas*, L., from Mashonaland, and *Silpha biguttata*, Fairm., from Patagonia. Sir George Hampson, two females of an apterous *Lasiocampa* from the Transvaal, with cocoon and ova bred by Col. J. M. Fawcett, 5th Lancers; the larvæ is very much like that of the British *Lasiocampa rubi*; the female does not emerge from the cocoon, its antennæ being aborted and all the joints coalesce with a flabellate organ with slight striæ indicating the joints, the fore tibiæ short with traces of tibial claws; the male is unknown, and as Colonel Fawcett was on active service at the time of emergence he was unable to expose the female for the purpose of attracting the male. Mr. H. St. J. Donisthorpe, specimens of *Ripersia Tomlini*, Newst., a Coccid new to Britain, taken with *Lasius niger* at Portland in April, 1900; the species was first discovered in Guernsey. Mr. C. P. Pickett, aberrations and varieties of *Lycæna bellargus*, *L. Corydon*, and *L. Astrarche*, taken by him in August, 1900, at Folkestone and Dover. Mr. H. Goss, a gynandromorphous specimen of *Lycæna bellargus* which he had taken at Reigate in June, 1900; it had the characters of a male in the right wings, and the characters of a female in the left wings, which were, however, not entirely free from the blue scales of the male. Dr. Chapman, a cocoon of *Atheraea mylitta* and a flint from Redhill, two objects with practically nothing in common; whilst dissenting *in toto* from those who see nothing in many cases of mimicry but accidental resemblance, he presented them with this as a case undoubtedly in accordance with their views, the cocoon and the flint being remarkably alike. Professor Poulton, an apparatus invented by him to determine the strength of the formic acid shot out by the ant in defence of its nest. Mr. Donisthorpe, he said, had noticed that a shower of formic acid had sometimes a great effect, and he thought it would be interesting to determine the quantity of anhydrous acid; in the case of *Dicranura vinula* the fluid, which contains 45 per cent. of acid, was painful in the eye, but did not damage the skin or body; he considered that the acid was only virulent during the time that the larvæ and pupæ were in the nest, and that it was used purely for defensive purposes. Mr. F. Enock, numerous specimens, illustrative of the metamorphoses of dragon-flies.

Mr. F. Enock read a paper, entitled, "The Metamorphoses of *Æschna cyanea*, illustrated by the electric lantern with photographs from life." Sir Geo. Hampson, Bart., a paper on "The Classification of a New Family of the *Lepidoptera*." Mr. Martin Jacoby, a paper, entitled, "A further contribution to the knowledge of African Phytophagous *Coleoptera*." Mr. Gilbert J. Arrow, a paper, entitled, "The Carabid genus *Pheropsophus*: Notes and Descriptions of New Species."

June 5th, 1901.—The President in the Chair.

Mr. G. C. Champion exhibited a male specimen of *Odontaus mobilicornis*, one of the rarest of British beetles, captured at Woking on May 28th. Mr. Donisthorpe said that the same species had also been taken this year at Bournemouth by Mr. and Mrs. Jackson. Mr. R. McLachlan, four specimens of a curious bug of the genus *Henicocephalus* received from Mr. G. V. Hudson, of Wellington, New Zealand;

he thought the genus, although of very wide distribution, had not previously been noticed in that country. Mr. Champion said that *Henicocephalus* was generally recognised as a type in itself of a family, and Mr. Kirkaldy that it was much commoner than generally supposed. It was probably only an aberrant form of the *Reduriidæ* having no stridulating apparatus on the prosternum. Mr. C. P. Pickett, a series of *Smerinthus tilia*, bred during May, 1900-1, including one male specimen having the right upper wing banded, the left wing with the two ordinary spots; a banded female; a male with only one spot; and a richly coloured female. Mr. C. G. Barrett, imagines, cocoons, pupa skins, and also water-colour sketches of larvæ, reared and drawn by Miss Frances Barrett, at Buntingville, Pondoland, South Africa, including *Hesperia keitloa*, *Leucaloea eugraphica*, *Liparis pulvereæ*, *Lenodora montana*, *Trabele ochroleuca*, *Chilena prompta*, *Braura ligniclusæ*, *Entricha pithyocampa*, *Dulichia fasciata*, *Porela sobria*, *Rhanidophora phedonia*, *Sphingomorpha chlorea* (*Monteironis*). Dr. A. Jefferis Turner, specimens of Australian wood-boring *Lepidoptera* belonging to four different families. They included—*Pyralidæ*: *Doddiana xyloryctis*, Turn. *Gelechiidæ*: *Cryptophasa flavolineata*, and *C. hemipsila*, Turn., *Maroga mythica*, Meyr., *M. setiotricha*, Meyr., *Uzucha borealis*, Turn. *Cossidæ*: *Dudgeona actinias*, Turn., *Xyleutes pulchra*, Roths., *X. Macleayi*, *X. nephocosma*, Turn. *Hepialidæ*: *Charagia mirabilis*, Roths., *C. ramsayi*, Scott, and *C. cyanochlora*, Lower. Mr. H. Goss, for Mr. Ernest Ardron, of Colombo, Ceylon, two specimens of a species of *Phyllium* (*Phasmidæ*). They bore an extraordinary resemblance to leaves. He also showed three varieties of the male of *Melitæa Cinxia*, which he had taken on the 27th and 28th of May at Niton, Isle of Wight. Mr. C. O. Waterhouse, two new genera and species of *Coleoptera* recently described by him in the Ann. and Mag. Nat. Hist. from Rio Janeiro. One belonged to the aberrant *Prionidæ* (*Pathocerus Wagneri*); the other (*Tetraphalerus Wagneri*) belonged to the *Cupesidæ*, and was remarkable for the form of its head. He also exhibited ♂ and ♀ of the curious *Scarabæid*, *Glyphoderes sterquilinus*, Westw., from North Argentina. Mr. H. St. J. Donisthorpe, a glove burnt by discharges of formic acid in the nests of *Formica rufa*. In connection with the apparatus exhibited at the last meeting to determine the strength of this acid, Professor Poulton said that the discharges collected in the tubes fluctuated greatly in strength, the strongest yielding a proportion of 60 to 70 per cent. of anhydrous acid, a drop of which placed by Mr. Holroyd on the back of his hand left a distinct scar some days after the application. The discharge of *Dicranura vinula*, he added, showed a strength of about 45 per cent., and Mr. F. Merrifield remarked that in breeding the larvæ the acid liberated by this species left a yellow stain on the lino, making it rotten. Mr. W. Schaus communicated "A Revision of the American *Notodontidæ*," and Mr. H. St. J. Donisthorpe read a paper on "Cases of Protective Resemblance, Mimicry, &c., in British *Coleoptera*." Professor Poulton said that the facts were admitted in the *Lepidoptera*, and it was interesting to see how far they were borne out in the *Coleoptera*. The *Ceridæ* mimicked other distasteful *Coleoptera*, e.g., the *Cantharidæ*; the *Lamiidæ* of Borneo were mimicked by other *Coleoptera*, and on the whole it would be found that the parallelism of facts between *Lepidoptera* and *Coleoptera* was far greater than anticipated. The Rev. Canon Fowler, Sir George Hampson, Mr. G. C. Champion, and Mr. R. Trimen continued the discussion.—H. ROWLAND BROWN, Hon. Sec.

BALEARIC INSECTS.

INTRODUCTION, BY EDWARD B. POULTON, M A., F.R.S.,

*Hope Professor of Zoology in the University of Oxford,
Fellow of Jesus College, Oxford.*

Having recently paid two visits to Majorca, the first in the spring of 1900, the second in the summer of the present year, I hope that the material obtained may be gradually worked out by specialists, and published. Thus a systematic beginning, at any rate, of the study of the little known insect fauna of Majorca will be undertaken. The results of a couple of days' collecting in Minorca, April 6th and 7th, 1900, are also included, together with material obtained later, in the summer of the same year, and kindly sent me by Scñ. Mauricio Hernandez of Mahon. The insect fauna of Minorca is, however, comparatively well known, especially the *Coleoptera*, a very complete list having been published (Mahon, 1872) by the late Dr. D. Francisco Cardona of Mahon.

The island of Majorca is about 60 miles in greatest length by 40 in greatest breadth. From the zoological aspect it presents three types of country :—

(1) The level plains, which are cultivated with remarkable diligence, so that the indigenous and derived insect faunas are almost confined to the road-sides, the beds of streams, occasional gardens, the neighbourhood of irrigation tanks, and the very few fields in which wild flowers have been permitted to remain.

(2) The mountains, chiefly developed and loftiest along the straight N.W. coast of the island, but also rising from the plains in isolated ridges and rounded masses. Here too the slopes are terraced and cultivated with extraordinary care, but numerous flowers exist, especially in the neighbourhood of the corn fields, and woods of low trees are to be found in many places. The higher steeper slopes are largely made up of bare rock with a scanty vegetation. A coarse grass growing in tufts is fairly abundant on some of the slopes. Some of the hills are almost covered with the palmetto, affording very barren ground to the collector. Pigs and goats are fed where the ground is not cultivated, even on the steepest and rockiest hill-sides.

(3) The low marshy land lying along the N.E. coast, bordering a portion of the circumference of the bays of Alcudia and Pollensa. This is probably the richest collecting ground in the island, and it has been unfortunately very little worked. Mr. Oldfield Thomas and Mr. R. I. Pocock collected for a day at Albufera, near the Bay of Alcudia, in the spring of 1900, and found the insects more abundant

and varied than elsewhere. I collected in the smaller area, called the "Little Albufera," adjoining the Bay of Pollensa in 1900, and again on two occasions, with Mr. W. Holland and Mr. A. H. Hamm, in July of the present year. We much wished to collect systematically in the larger and more important tract visited by Mr. Thomas and Mr. Pocock, but the prevalence of malaria at Alcudia prevented us. Even at Pollensa, where there is a little malaria, we were regularly bitten by numbers of mosquitos every night (although, as Mr. Theobald informs me, the specimens we brought home were only *Culex pipiens*, L.), and finding that mosquito curtains were unknown at the Fondas in Alcudia, I decided that the risk was too great. Had I been aware of the conditions I should have arranged to take portable mosquito-proof coverings.

From the above account it will be clear that only a small proportion of the indigenous insect fauna can now be looked for in Majorca. Excessive cultivation, continued from a remote historic period, cannot fail to have destroyed by far the larger number of the species. At the same time there is reason to hope that the remainder will exhibit many features of interest.

Minorca is probably relatively much richer than Majorca. There is not that excessive devotion to agriculture which is so characteristic of Majorca, but grass is grown freely, and with it a varied and tolerably luxuriant vegetation. The surface of the island is much flatter and less interesting, the highest hill, Mount Toro, being only 1150 feet.

The first two sections, by Mr. Edward Saunders, contain an account of the *Hymenoptera Aculeata* and the *Hemiptera* collected in the spring of 1900 by Mr. Thomas and Mr. Pocock, and presented to the British Museum of Natural History, and those collected by me at the same time and presented to the Hope Department of the Oxford University Museum. The specimens described below may be seen in these two Institutions. I have added a few notes of locality, habits, &c. The third section, by Col. J. W. Yerbury, will contain an account of the *Diptera* collected by the same naturalists at the same times and places as the *Hymenoptera* and *Hemiptera*.

The following is an account of the route I followed in 1900.

March 24th, 25th and part of 26th—Palma. Collected at Porto Pi, and especially in the grounds of Bellver Castle (150 to 400 feet), where flowers were very abundant. This was the most favourable locality I met with during the visit in 1900. Weather fine and sunny.

March 26th and 27th—Valldemosa and Miramar. High ground

with mountains behind and sea in front; weather sunny. Collected (27th) by road-side from Miramar to Valldemosa, and in Arch-Duke's garden and the cliff below. Then drove to Soller.

March 28th and 29th—Soller. Excessively cultivated valley, surrounded by high mountains. Weather cold and cloudy, unsuitable for collecting. Returned to Palma on 29th.

March 30th—Bellver Castle in the morning (sunny): then to Manacor.

March 31st—Manacor, cloudy and cold: travelled to Pollensa, collecting in a field at Empalme on the way.

April 1st, 2nd, 3rd and 4th—Pollensa. Collected on low hills near the town (1st and 2nd), and on the way to the Castillo del Rey on the 3rd, the road rising to a considerable elevation as it approached the coast. These three days sunny and warm. On the 4th (cloudy) collected on the low ground and in the ditches by the Port of Pollensa. Left for Minorca at night.

April 5th, 6th and 7th—Mahon, Minorca. Hard rain on 5th. On the 6th and 7th collected at a low elevation near Mahon; very windy and cloudy (gleams of sun on the 6th).

Mr. Thomas and Mr. Pocock collected at Inca, Majorea (March 24th to April 2nd, 1900), a small town lying towards the centre of the island in the richly cultivated plain, but near to the N.W. chain of mountains. They collected insects chiefly on the hill-sides, near the water-tanks, and in the copses in the neighbourhood of the town, making one excursion to the Albufera near Alendia, and another to the caves of Manacor.

In Minorca they collected at San Cristobal (April 6th to 15th, 1900), a small village lying from two to three miles distant from the southern coast of the island at an altitude of about 300 feet. The country round is given over to cultivation; but on the slopes of the deep limestone gullies that run from the village down to the sea, as well as on the sides of a rugged hill a mile or so to the north of the village, the soil has been left to a considerable extent undisturbed. Here and along the sides of the main road, where wild flowers, especially a species of clover, grew luxuriantly, most of the *Hymenoptera* were procured (see also P. Z. S., 1901, pp. 35, 36).

This account will make clear the captors of any of the specimens mentioned below, but it may be stated generally that when no name is given after the locality the capture was made by me.

Oxford: July, 1901.

BALEARIC INSECTS.—HYMENOPTERA ACULEATA

COLLECTED IN MAJORCA AND MINORCA (MARCH AND APRIL, 1900) BY E. B. POULTON, OLDFIELD THOMAS, AND R. I. POOCK, WITH DESCRIPTIONS OF NEW SPECIES.

BY EDWARD SAUNDERS, F.L.S., &c.

Camponotus Sichelii, Mayr, ♂, 2, Monte Sentuiri, near Pollensa, Majorca, April 2nd.

Lasius niger, Linn., ♂, 2, Pollensa, April 1st and 2nd.

Aphenogaster barbara, Linn., ♂, 11, Palma, Majorca, March 24th.—*testaceopilosa*, Linn., ♂, 9, Palma, Majorca, March 24th.

Mutilla quinquemaculata, Cyr., ♀, 1, near Mahon, Minorca, April 6th.

Elis ciliata, Fab., ♂, 26, ♀, 1. This species was excessively abundant in the grounds of Castle Bellver, Palma, Majorca, March 25th, 26th, and 30th. It was in this locality that the only female out of 39 individuals captured was secured (March 25th). Specimens were also obtained from the summit of the Puig de Maria, Pollensa, April 2nd, and from the summit of the Talayot of Trepucó, near Mahon, Minorca. The species was thus never seen except on hills and mounds. The insects flew close to the ground, continually alighting on the earth and stones, E. B. P.; 3 ♂, 1 ♀, not localised, Thomas and Pocock, 1900.

Pompilus riatricus, L., ♀, 5 (wings very dark), Castle Bellver, March 26th and 30th; below Castle del Rey, Pollensa, April 3rd; Monte Sentuiri, Pollensa, April 2nd.

Ammophila hirsuta, Scop., ♀, 9, Palma, March 24th; Bellver, March 25th, 26th, and 30th; Miramar, March 27th (Hernandez).

Pelopæus spirifex, L., ♂ ♀, Minorca.

Odynerus parietum, L., ♂, 2, Pollensa, Monte Sentuiri, and Puig de Maria, April 2nd; ♂, 2, Minorca, near Talayot of Trepucó, near Mahon, April 6th; ♂, Inca, Majorca, and San Cristobal, Minorca, March and April, 1900, Thomas and Pocock.—sp.?, ♂, 2. I should not like to name this for certain without seeing both sexes. Minorca, N. of Port Mahon, April 7th.

Polistes gallica, L., ♀, 5, Minorca, near Talayot of Trepucó, April 6th.—♀, 8, Majorca, Palma, Porto Pi, March 24th; Castle Bellver, March 25th and 30th; Miramar to Valldemosa, March 27th; Pollensa, April 2nd and 3rd (very abundant); Albufera and Inca, Majorca, March and April, Thomas and Pocock.

Prosopis, sp.?, ♂, closely allied to *Masoni*, Saund., but on a single example I cannot determine it for certain. Pollensa, Monte Sentuiri, April 2nd.

Sphecodes fuscipennis, Germ. (var. with red legs), 3 ♂, 3 ♀, Pollensa, base of Monte Sentuiri, April 2nd (on flowers); Castle Bellver, March 25th and 30th. ♂ and 2 ♀, not localised Thomas, and Pocock, 1900.

Halictus scabiosæ, Rossi, ♀, 6, Castle Bellver, March 25th and 30th; Miramar, March 27th (on flowers); ♀, Inca, Majorca, March, and 1 ♀ not localised, Thomas and Pocock, 1900.—*malachurus*, K., ♀, 1, Pollensa, Puig de Maria, April 2nd.—*villosulus*, K., ♀, 3, Castle Bellver, March 30th; Pollensa, Monte Sentuiri, April 2nd.—sp.?, ♀, 6, Castle Bellver, March 25th, 26th, and 30th; Pollensa, April 3rd.—*cephalicus*, Mor., ♀, 1, Pollensa, Puig de Maria, April 2nd.

HALICTUS SOROR, n. sp., ♀, 2, Castle Bellver, March 26th and 30th.

♀. *H. morioni*, affinis, obscure viridi-niger, capite thoraceque albopilosis opacis, creberrime punctatis, facie sat elongata, plus minus ut in *punctatissimo* formata, clypeo plus quam dimidio latitudinis sui ultra oculos projecto, abdominis segmentibus subnigricantibus, viridi-nigris crebre punctatis, apicibus, præsertim in lateribus, valde impressis, marginibus posticis piceis; pedibus nigris. Long., 6—7 mm., a *Morioni* differt facie valde elongata, corpore opaco, colore viridi-nigro non æneo-nigro crebriore punctato, præsertim in segmento basali abdominis.

♂. a *morioni* differt capite elongato, clypeo valde producto.

I have received both sexes of this species from Algeria, taken by Rev. A. E. Eaton, and I have made my remarks on the ♂ from one of his captures.

Andrena morio, Brullé, ♀, 4, Castle Bellver, March 30th; ♂ and ♀, Inca, Majorca, Thomas and Pocock, 1900.—*rosæ*, Pz. (r. *Trimmerana*), ♀, 1, Miramar, March 27th.—sp.?, ♀ (styloized), Miramar, March 27th.—*Gwynana*, K., ♀, var.?, very obscure in coloration, Miramar, March 27th (on flowers).—*nigro-olivacea*, Doubs, 8 ♂, 1 ♀. The males, Miramar, March 27th (on flowers); female, Pollensa, April 3rd. The males are of the ordinary type of this species, but the ♀ is peculiar in having the tibiae black instead of testaceous.—*flavipes*, Pz., = *fulvicrus*, Kirb., ♂ 2, ♀ 6, Castle Bellver, March 25th and 30th; Pollensa, April 2nd.—var.?, ♀, 1; not localised, Thomas and Pocock, 1900.—sp.?, group of *Afzeliella*, &c., ♀, 3, Castle Bellver, March 30th; Pollensa, April 2nd and 3rd.

Dioyxs cincta, Jur., ♀, 2, San Cristobal, Minorca, April 6th to 14th, 1900, Thomas and Pocock.

Nomada fucata, Pz., var. *iberica*, ♀, 1, not localised, Thomas and Pocock, 1900.

NOMADA POULTONI (n. sp.), ♂ 1, ♀ 3, Castle Bellver, one female, March 25th, all others March 30th (on flowers), all were captured on the summit of the hill (400 ft.) outside the castle.

♂. Caput nigrum opacum, creberrime rugoso-punctatum ochraceo-fusco dense hirsutum, clypeo antice, faciei lateribus, macula minuta supra clypeum lineaque pone oculos, mandibulis (apicibus piceis exceptis), labroque flavis, hoc inermi; antennis fulvis, scapo, articulisque 3—9, supra plus minus nigris, flagelli articulis 2^{do} 3^{tio} que subæqualibus, 3^{tio}, quarto, paullo longiore. Thorax niger, sculpturâ vestituque capiti simillimus, tegulis, callis humeralibus, maculaque pleurali sub tuberculis, maculisque duabus minutis scutellaribus flavis, alis subinfuscatis, nervis piceo-testaceis. Abdomen superne punctatissimum, fere ut in *fucata*, Pz. coloratum, segmento basali omnino læte ferrugineo, reliquis fascia integra, medio subconstricta, flava ornatis, 5, 6, 7, fere totis flavis; septimo apice emarginato; subtus testaceum, nitidum, segmento sexto valde punctato, ceteris fere impunctatis; pedibus fulvis, coxis, trochanteribus, femoribusque linea subtus nigra; tibiis posticis prope apicem unco uno munitis, metatarsorum lateribus subparallelis.

♀. Nigra, clypeo, macula supra clypeum, faciei lateribus, mandibulis (apicibus nigris exceptis) labro, antennis, linea pone oculos, tegulis, callis humeralibus, maculaque obscurâ antice pleurale sub callis, scutelli tuberculis, linea subscutelli, abdomine, pedibusque læte ferrugineis; abdominis segmento quarto basi transverse nigro maculato, capite et thorace obscuris valde et creberrime punctatis, pilis fusco-

nigris dense vestitis, alis saturate infuscatis; abdomine submicante subtilissime et creberrime punctato, tibiis posticis apicibus productis, unciis duobus incurvatis nigro-fuscis armatis.

Long., 13—14 mm.

This fine species, which I have much pleasure in naming after its talented captor, is somewhat allied to *pæcilonota*, Perez, but is very different in the black pubescence of the head and thorax and the general coloration.

Xylocopa violacea, L., ♂, 1, Valldemosa, Majorca, March 27th.

Ceratina Dallatorreana, Friese, ♀, 1, Inca, Majorca, March, 1900, Thomas and Pocock.

Chalicodoma sicula, Rossi, ♂ 22, ♀ 15, Minorca, near Mahon, April 6th.—♂ 10, ♀ 15, Majorca, Porto Pi, March 24th; Castle Bellver, March 25th and 30th; Pollensa, April 2nd; between Pollensa and Castle del Rey, April 3rd; Miramar to Valldemosa, March 27th. In Majorca these insects were found in stony hilly country, frequently settling on the ground. They were extremely hard to catch. In Minorca, on the other hand, they were far more abundant and easily captured. The difference may have been due to the colder, more windy, weather in the latter island (E. B. P.). San Cristobal, Minorca, and Inca, Majorca, March and April, 1900, Thomas and Pocock.

Anthidium 7-dentatum, Latr., ♀, Castle Bellver, March 26th.

Osmia cornuta, Ltr., ♀, 1, Miramar, March 27th (on flowers).—♀, not localised, 1900, Thomas and Pocock.—*Latreillei*, ♂, 2, Castle Bellver, March 26th (on wall); Minorca, near Talayot of Trepuco, April 6th.—*submicans*, Mor., ♀, near Talayot of Trepuco, Mahon, April 6th; San Cristobal, Minorca, April 6th to 14th, 1900, Thomas and Pocock.—*cærulescens*, L., ♂, 2, San Cristobal, Minorca April 6th to 14th, 1900, Thomas and Pocock.

Eucera numida, Lep., ♀, 1, near Mahon, April 6th (M. Hernandez).—*nigri-labris*, Lep., ♀, 10, Palma, March 24th (on cruciferous flowers); Castle Bellver, March 25th and 30th.—*grisea*, Fab., ♀, 1, Minorca, near Talayot of Trepuco, April 6th; 2 ♂, 1 ♀, Inca, Majorca, Thomas and Pocock; 5 ♀, no locality, Thomas and Pocock.—♂ 14, ♀ 21, Porto Pi, March 24th; Castle Bellver, March 25th and 30th (on flowers).

Melecta luctuosa, Scop., ♂ 2, ♀ 1, Castle Bellver, March 25th; Miramar to Valldemosa, March 27th; Pollensa to Castle del Rey, April 3rd; Inca, Majorca, Thomas and Pocock, 1900.—*plurinotata*, Brullé, ♂ 1, Castle Bellver, March 23rd.

Podalirius quadrifasciatus, Villers, ♀ 5, Minorca, 1900 (Hernandez).—*pilipes*, F., ♂ 7, ♀ 23, Palma, March 24th; Castle Bellver, March 25th, 26th, and 30th; Miramar, March 27th; Valldemosa, March 27th (colonies flying round their nests in holes in walls); Pollensa, April 3rd and 4th. A very abundant species, always found on flowers except at Valldemosa. ♀ 1, not localised, Thomas and Pocock, 1900.—*nigrocinctus*, Lep., ♀ 2, Minorca, near Talayot of Trepuco, April 6th.—♂ 3, ♀ 11, Castle Bellver, March 25th, 26th, and 30th (abundant on flowers). ♀, Inca, Majorca, March, 1900, Thomas and Pocock.—*balearicus*, Friese, ♂ 1, ♀ 2, Castle Bellver, March 30th; Pollensa to Castle del Rey, April 3rd. 1 ♂, Thomas and Pocock, 1900.

Bombus terrestris, L., var. *ferrugineus*, Schmied., ♂, 14, ♀, 5, ♀, 1, Castle Bellver, March 25th, 26th, and 30th; Miramar, March 27th; Pollensa, Puig de Maria, April 2nd and 5th (abundant on flowers). All the specimens taken of *B. terrestris* were of this form, which differs from the type in having the hairs of the tibiae fulvous; it occurs in S. W. France, Spain, and Portugal, but the specimens I have of this species from Algeria, are of the type form.

Apis mellifica, Linn., ♀, 33, abundant everywhere in Majorca, Minorca, Talayot of Trepuco, April 6th. 1 ♂, Thomas and Pocock, not localised, 1900.

Thus 48 species were obtained. The number captured in June and July of the present year will turn out to be far larger.

Woking: July, 1901.

SUMMARY OF AN ARTICLE BY PROF. FÉLIX PLATEAU, INTITULED
"LES SYRPHIDES, ADMIRENT ILS LES COULEURS DES FLEURS?"

[Prof. Plateau is well known as an uncompromising antagonist of certain popular theories on the attractions of flowers for insects (and kindred subjects), and the evolutionary ideas connected therewith. He has forwarded to us a number of recent articles by him on the subject, and one cannot but admire the closeness of observation in his numerous experiments, even if some are not prepared to accept his conclusions. We give below the summary of a paper published in the "Mémoires de la Société Zoologique de France," vol. xiii (1900). —Eds.].

- 1.—The number of closely described supposed proofs of admiration on the part of insects for the colour of flowers is very small, and is reduced to seven in all among the thousands of observations made by a series of naturalists.
- 2.—The only insects signalized are *Syrphidæ*, that is to say, insects with limited faculties inferior to those of *Hymenoptera*.
- 3.—According to my personal observations the *Syrphidæ* offer their admirational attentions not only to flowers without brilliant colours, but to those which are green or greenish, and nearly of the colour of the foliage.
- 4.—According to my own observations, and of those authors whose names are indicated in the text, visits of *Syrphidæ*, often abundant, to green or greenish flowers, have been proved in 35 species of plants, belonging to 22 different families.
- 5.—According to my observations *Syrphidæ* frequently hover before vegetable bodies of any kind other than flowers, such as green leaves, buds closed and green, green fruits, green or brown twigs.
- 6.—My experiences show that *Syrphidæ* effect their stationary so-called admirational flight before objects, having no analogy with flowers, nor even with living vegetable organs, such as the finger or hand of the experimenter, a stick, a piece of furniture, a net.
- 7.—As a consequence *the admiration of insects for flowers does not exist.*

The theory put forward on this subject results from the erroneous interpretation of some cases which would never have been considered as furnishing proof of an æsthetic sense if trouble had been taken to observe that insects execute the same pretended admirational acts before numerous objects not resembling flowers either in form or coloration.

LOPHOSIA FASCIATA, Mg.: A NEW BRITISH DIPTERON.

BY F. C. ADAMS, F.Z.S.

I have recently taken in my garden three fine specimens of *Lophosia fasciata*, Mg., which fly I believe has not been previously recorded as British. They were obtained on July 22nd and 24th and August 1st respectively.

Fern Cottage, Lyndhurst:

August 17th, 1901.

TACHINIDÆ COLLECTED IN 1900.

BY COLBRAN J. WAINWRIGHT, F.E.S.

So little is known about the species of *Tachinidæ* occurring in this country that a list of those obtained by me last year is probably worth publishing.

I use the term *Tachinidæ* for want of a better; the old family *Tachinidæ*, of Schiner, Verrall's list, &c., cannot now be regarded as distinct from *Dexidæ* and *Sarcophagidæ*, and probably not from *Muscidæ* (*sens strict.*). Prof. Brauer, whose writings on this group are the most important we possess at present, merges all four families, and describes them as "*Muscaria Schizometopa* (exclusive *Anthomyidæ*).\" The *Anthomyidæ*, whose close relationship is indicated in this term are sufficiently distinct to be left outside, and the *Muscidæ*, in the old sense, also form a fairly definitely homogeneous section; the *Tachinidæ*, *Dexidæ*, and *Sarcophagidæ*, however, cannot be separated, and it is the insects comprised in these three old families that I refer to under the general term *Tachinidæ*.

The generic nomenclature and main lines of identification of the species referred to, are entirely based upon Brauer's writings.

Meigenia floralis, Mg.—a generally distributed species, I obtained last year at West Runton, Norfolk, and Selsley and Chalford, Glos. *M. bisignata*, Mg.—specimens which stand for this species occurred at Cranham and Selsley, Glos.; until I have a much larger series I could not be sure that it is distinct from *floralis*, especially as I have another specimen from Cranham, which means either another species or proves the variability of *floralis*.

Ceromasia (Dexodes) machairopsis, B. and B.—I have nine males from West Runton, Norfolk, which I think are this species; they certainly have a most decidedly serrate ridge on the under-side of the abdomen, which is the main characteristic of the species. *C. (D.) stabulans*, Mg.—a common species, occurred at West Runton, and Selsley, Glos. *C. (Paraphorocera) senilis*, Mg.—common at West Runton; this seems to be one of our most generally distributed species, as I find it in every lot of *Tachinidæ* I have to name.

Nemorilla notabilis, Mg.—common at West Runton.

Epicampocera succincta, Mg.—a pair at West Runton.

Blepharidea vulgaris, Fall.—a universally common species; West Runton, Sutton Coldfield, and Selsley, Glos. Brauer makes six species of this, and places them in six sub-genera. I cannot at present, however, find any constant characters by which my fairly rich material can be separated, though many of the differences occur upon which Brauer bases his separations. They vary much in the size of the antennæ, length of second joint of arista, number of facial vibrissæ, number of dorso-central thoracic bristles, &c.; but every combination of variations seems to occur, and if I separated them at all it seems to me that I should have to further increase the number of species.

Bothria (Setigena) cæsifrons, Macq.—one of our very common species; last year I only found it at Selsley, Glos.

Chatolyga quadripustulata, Fall.—another common species; common at West Runton. According to Schiner, my specimens would be *erythrura*, Mg., as they possess macrochetæ on the first abdominal segment; but in my series there is a great deal of variation in the size of the pair on the first segment, and in the number of those on the second segment, so that *erythrura* is probably only a frequent form of *quadripustulata*, and the presence or absence of the macrochetæ on the first segment of no specific importance.

Chatotachina rustica, Mg.—West Runton. My specimens of this species vary so much in rather important particulars, that these may prove to be more than one species, in which case the West Runton specimens may have to have another name.

Thelymorpha vertiginosa, Mg.—several at West Runton.

Aporomyia dubia, Fall.—one of our commonest species, occurred last year to me at Selsley and Chalford, Glos.

Melanota volvulus, F.—West Runton.

Hyria tibialis, Fall.—one female, Chalford, Glos., which is almost certainly this species.

Macquartia tenebricosa, Mg.—West Runton, and Chalford, Glos., one specimen at each place.

Ptilops chalybeata, Mg.—Selsley, Glos.

Thelaira leucozona, Pz.—a common species, common at West Runton.

Myobia, sp.?.—from Selsley, Glos. The specimens I have of this genus are so variable that they would do for several species. I should not be surprised to find that they were all one, and that *pacifica*, Mg., and other species would have to sink as synonyms of *inanis*, Fall.

Rhynchista proluxa, Meig.—five ♂♂ and 2 ♀♀ from Selsley, Glos. This species, I believe, is quite new to the British list, and is a very distinct one.

Olivieria lateralis, F.—West Runton, abundant on ragwort. Always common, and it seems always associated with ragwort, and near Cley, Norfolk, on the salt marshes, there seemed to be a dozen at least on every head of bloom.

Micropalpus vulpinus, Fall.—common everywhere I have collected. In great numbers in Wyre Forest last September, also taken at West Runton.

Erigone radicum, F.—West Runton. Another of our common species occurring everywhere. *E. rudis*, Fall. (= *strenua*, Meig.).—Selsley and Cranham, Glos. Like the last, very generally common. This seems to be a spring species, which I have seen in great numbers in May and early June on *Euphorbia* flowers, &c. *Radicum* seems to be more of a summer species, and nearly all of my long series were taken in August.

Tachina fera, L.—Cranham, Glos. At Wyre Forest in September it was almost as abundant as *M. vulpinus* referred to above; the two species were on nearly every head of bloom of any kind. It is always a common species.

Plagia ruralis, Fall.—Chalford, Glos., and Wyre Forest. *P. (Paraplagia) trepida*, Mg.—Selsley, Glos.

Roeselia pallipes, Fall. (= *antiqua*, Fall.).—common at West Runton, but I have not met with the species anywhere else.

Alophora (Paralophora) pusilla, F.—Chalford, Glos.

Trixa æstroidea, R. D.—Chalford and Selsley, Glos., and Wyre Forest.

Phyto melanocephala, Mg.—Selsley, Glos., = probably this species. *P. parvicornis*, Mg.—West Runton, perhaps only a variety of above.

Species?—probably new, and probably also requiring a new genus. It seems to come near to *Stevenia*, but is separated from it by possession of hairy cheeks, and by the hinder cross vein coming nearly to the middle of the first hind marginal cell, instead of nearer to the small cross vein, as in *Stevenia*. One specimen, ♀, from West Runton.

Brachycoma devia, Rond.—one ♂ West Runton.

Frauenfeldia trilineata, Mg.—3 ♂♂ and 2 ♀♀ from West Runton. This species I believe has not been known as British before. There is an element of doubt about the specific identity, but there is no doubt about the genus; and no species of the genus occurs in our lists.

Clista lepida, Meig.—several from West Runton. This is the same species as those mentioned by Dr. Meade in his annotated list as *mærens* and *ænescens*. I do not think, however, that Dr. Meade had correctly identified them, and, moreover, I feel sure that his *mærens* represented the male, and *ænescens* the female of the same species. *Lepida*, Meig., was very insufficiently described, but my specimens agree with the description, as far as it goes, and do not quite agree with any other.

Heteronychia chætoneura, B. and B.—West Runton, Norfolk, Chalford and Selsley, Glos. One specimen only from each place.

Nyctia halterata, Pz.—common at Selsley, Glos., also one from Chalford.

Enggops micronyx, B. and B.—two ♂♂ from Cranham, Glos. A distinct species quite new to Britain. Rondani, who founded the genus, wrote *Eggisops*.

Melanomyia nana, Mg.—common at West Runtton and Chalford, Glos. At West Runtton I found them in little groups settled on leaves.

Miltogramma punctata, Mg.—several at West Runtton on a sandy bank where many Aculeates were nesting; also some on ragwort blooms.

Metopia leucocephala, Rossi.—West Runtton, Sutton Coldfield, and Cranham, Glos.

Macronychia agrestis, Fall.—one specimen from West Runtton.

Dexiosoma caninum, F.—abundant at West Runtton amongst the bracken. It seems to be usually found settled on the bracken, where it grows thickly, and is often abundant.

Dinera griseascens, Fall.—West Runtton.

Prosenia siberita, F.—common at West Runtton, where I got a nice series. It was specially common on the ragwort, but also occurred on burdock and other flowers.

Myiocera carinifrons, Fall.—Wyre Forest in September.

I also took a number of specimens of the genus *Sarcophaga*, but those I will not venture to name at present.

In the above list I have only given those species which I obtained during 1900. In my collection, however, are a number of other interesting species taken in former years, which will probably form the occasion of another note. It will be seen that in this one year alone several species new to us occurred, and doubtless many others remain to be discovered.

I would appeal, in conclusion, to breeders of *Lepidoptera* or other insects to save for me any Dipterous parasites they may breed, and to let me have them with, if possible, the name of the species from which they were bred.

2, Handsworth Wood Road,
Handsworth, Staffs. : June 23rd, 1901.

ON A NEW GENUS OF *GEOMETRIDÆ* FROM THE HAWAIIAN ISLANDS.

BY R. C. L. PERKINS, B.A.

The Hawaiian *Selidosemidæ* are a most important part of the Lepidopterous fauna, thirty-four species having been already described. These are distributed very unevenly in three genera, all peculiar to the islands, since two of these genera contain together but three of the species. The large genus *Scotorhythra*, containing the rest of the species, will, however, at some time be subdivided, since the males furnish excellent structural characters for such division. The difficulty of finding good generic characters in both sexes is manifest very generally in most of the Orders of insects inhabiting the islands, and in cases where the characters are very pronounced in

one sex (whether ♂ or ♀) it appears legitimate to assign generic value to these. There is little doubt that in such cases minute characters will ultimately be found in the less modified sex to distinguish allied genera. The genus here described is clearly an offshoot from *Scotorhynchus*, and appears to be of at least equal value to *Sisyrophyta*. In the main the facies is that of *Scotorhynchus*, the structure of the legs, antennæ, &c., being quite similar. The characters (♂) here given will readily distinguish the new form from the allied genera.

NESOCHLIDE, *gen. nov.*

Thorax and abdomen very densely hairy beneath, the latter also densely hairy at the sides to near the base. Intermediate femora densely hairy beneath. Groove of posterior tibiæ fringed with longish hairs, and containing a very large hair-pencil of mostly black hairs, the ends of which are much matted together. Fore-wings beneath along the costa towards the base with longish decumbent hairs, and below these with a large elongate-oval patch of much modified glandular scales. Hind-wings beneath with the veins towards the costa bearing longish dense hairs except on their apical parts. ♂.

NESOCHLIDE EPIXANTHA, *sp. nov.*

♂. Expanse, 43—48 mm. Head and thorax ochreous-orange to reddish-orange; antennæ pale ochreous, the pectinations moderately long, fuscous, the base sometimes orange-suffused. Abdomen pale ochreous-yellow. Legs more or less spotted with fuscous, the front pairs sometimes suffused with orange, the hind pale ochreous-yellow. Fore-wings elongate-triangular, the termen bowed, apex very distinctly prominent, ochreous-orange to reddish-orange, more or less and often much dotted or even suffused with fuscous but very variable in amount and intensity of the dark colour; second line formed by a series of fuscous dots generally very distinct, nearly straight; first line when distinct oblique inwardly from the costa for one-fourth, then semicircularly curved outwards for one-half, sometimes very indistinct or represented by a few dots or obscured by suffusion; a large discal fuscous spot sometimes present or entirely wanting. Hind-wings very pale whitish-ochreous, sometimes shading into orange along the margin, a marginal series of dark dots sometimes present.

Hab.: Oahu, in the mountains. Widely distributed, since it is found in localities at both ends of the range, and common, but often so damaged as to be useless for collections.

Obs.—In the presence of glandular scales on the wings beneath this species reminds one of *Scotorhynchus trachypis*, Meyr., but I expect it is more likely to be allied to *S. megalophylla*, Meyr., and that its ♀ when discovered will have falcate apices to the fore-wings as in that species. It is not impossible that the last named species may be congeneric with the one here described, since only the ♀ of the one and the ♂ of the other are at present known.

Honolulu, H. I.: June, 1901.

AN ADDITION TO THE RHYNCHOTAL FAUNA OF NEW ZEALAND
(*HENICOCEPHALUS MACLACHLANI*).

BY G. W. KIRKALDY, F.E.S.

The genus *Henicocephalus* forms by itself an isolated division of the great predaceous family *Reduviidæ*, characterized by the structure of the thorax, wings and legs. The *Henicocephalinæ* and the *Nabiniæ* are the only Reduviid divisions in which the prosternum is not modified for stridulatory purposes. The typical and only genus was founded under the name of *Enicocephalus* by Westwood in 1837*, for four species, one of which was obtained from animé.† The genus is almost cosmopolitan, the nineteen species now known having been described from North, Central, and South America, Hercegovina, India, Ceylon, Tasmania, Madagascar, &c., and through the kindness of Mr. McLachlan, I am now able to add one from New Zealand. The descriptions of the American species are good and intelligible, but those of the Oriental and Australian regions are mostly quite inadequate. Although so characteristic in appearance and structure, the genus has been re-introduced six times since its first description, under the names *Systelloderes*, Blanchard, 1852; *Oncylocotis*, Stål, 1855; *Henschiella*, Horváth, 1888; *Dicephalus*, Kirby, 1891; *Hymenodectes* and *Hymenocoris*, Uhler, 1892!

Some nine years ago Dr. Bergroth announced his intention of monographing the genus, but up to the present his work has not appeared. In the meantime, figures may be seen in Westwood's paper cited above; in the "Biologia Centrali-Americana, *Rhynchota*," ii, plate 10; Journal Linn. Soc. London, Zool., xxiv, plate iv, &c.

Our knowledge of the biology of the genus is limited. In 1852 Blanchard named *H. moschatus* from its musky smell‡, and noted that it appeared in little swarms like mosquitos. In 1879 Berg mentioned§ that *H. spurculus*, Stål, was commonly observed in Buenos Ayres, especially about evening, in fairly large swarms in the air. The same species was recorded by Berg in 1893|| as having been observed in the garden of the Art Gallery shortly before sunset in large swarms, two metres above the ground. He was of opinion that the apparently harmless swarms resulted in selection of the sexes, as most of the individuals which he captured on their fall to earth were *in copula*. A musky smell was also observed in this species. Mr. E. E. Green¶

* Trans. Ent. Soc. London, ii, pp. 23-24; type *javicollis* from St. Vincent.

† Not "copal" as Karsch says (1892, Berlin. Ent. Zeit., p. 485).

‡ In Gay's "Historia de Chile," vii, pp. 224-5. § Anal. Soc. Cient. Argent., viii, p. 21.

|| Berlin. Ent. Zeit., xxxviii, p. 362. ¶ In Kirby, Journ. Linn. Soc. London, Zool., xxiv, p. 117

noted that *H. telescopicus* was found flying in bright sunshine in open glades of jungle near felled timber. Flight sustained, three or four found frequently playing together like common flies in a room, or like *Ephemeridæ*.

H. MACLACHLANI, sp. nov.

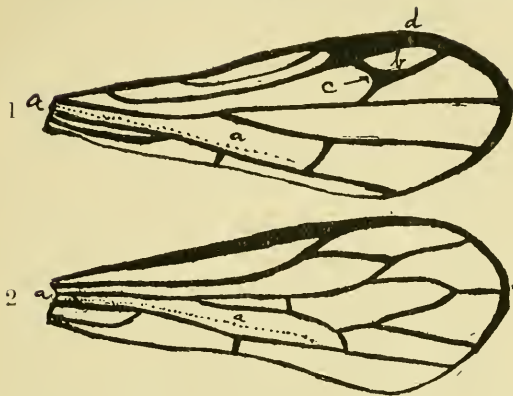
Dull, somewhat strongly pilose on head, pronotum, legs and lateral margin of abdomen. Posterior lobe of head subrotundate, a trifle transverse, not sulcate, long-pilose, a little callose basally beneath. Eyes and ocelli prominent. Rostrum about two-thirds longer than head, first segment subannuliform, second about three times as long as the first, third two and a half times as long as second, and nearly twice as long as fourth. Antennæ twice as long as head, sparsely setose, somewhat slender, first segment stouter than the rest, reaching beyond apex of head; second segment two and four-fifths as long as the first, one-fifth longer than third, and two-fifths longer than fourth. Anterior lobe of pronotum a little shorter than the intermediate and posterior, which are medianly subequal; posterior lobe two and three-quarter times as broad as anterior lobe, and four-sevenths broader than intermediate lobe, which is longitudinally impressed (or broadly sulcate); posterior lobe medianly somewhat obsoletely carinate, lateral margins rounded, diverging towards the base, which is obtuse-angularly emarginate. Anterior legs not very stout, tibiae dilated apically, tarsi with two long unequal claws. Elytral nervures sparingly pilose. Abdomen carinate broadly beneath. Head and pronotum piecous above and beneath, the posterior lobe of the pronotum more pallid. Antennæ, anterior femora, &c., dark fuscous, antennæ more or less clouded with pallid; rest of legs, abdomen above and beneath, fusco-testaceous; legs not annulate. Elytra cinereo-hyaline, nervures cinereous; wing-nervures pallid cinereous.

Length (excl. elytra), $5\frac{3}{4}$ mm.; expanse of elytra, about $8\frac{1}{2}$ mm.

Hab.: Wellington, New Zealand (*G. V. Hudson*, No 73).

It is possible that this species may be identical with the very insufficiently described *tasmanicus*, Westw., which, however, according to Westwood, is larger, has concolorous antennæ, and the exterior margin of the elytra white at the base. From the Sinhalese *telescopicus* (Kirby), the only other species of which I have examined several examples, it differs by its much smaller size. The latter is also much more robust, and the antennæ are shorter and thicker, the posterior margin of the pronotum is truncate, and the posterior lobe of the head more elongate. In Champion's descriptions of American species it works out near *annulipes*, Champ., from which it is at once distinguished by the non-annulate legs. *H. moschatus* has a smooth head and is entirely fuscotestaceous. This species and Stål's Brazilian forms are much (comparatively) smaller. *H. subantarecticus*, Berg, has a differently formed pronotum and shorter elytra (? *forma brachyptera*) and differently proportioned antennæ.

The neururation of *Henicocephalus* is very peculiar, and has been neglected almost entirely by previous writers. The entirely



membranous elytra of two species (*Mac-lachlani*, fig. 1, and *telescopicus*, fig. 2) are figured. As the neururation does not correspond with that of any other Rhynchotal genus known

to me, and as the neural nomenclature in this Order is still very confused, I do not propose to give a description. It may be noted, however, that the *claval suture* (*a*) is evanescent apically (as in many *Homoptera*), and does not reach the lateral margin of the elytron.

The neururation of the various species is somewhat dissimilar.* *H. concolor* (e. g.) is considerably reticulate. In one specimen of *H. Mac-lachlani* the cell marked *b* has a cross veinlet extending from the vein *c* to the exterior margin at *d*.

The series of this species and of *H. telescopicus* that I have examined are either all of one sex, or do not present any notable external sexual differences. The species appear to have a comparatively very small range of variation in dimensions among themselves.

In the third volume of Lethierry and Severin's "Catalogue Général des Hémiptères" (1896), there are three misprints:—

1. *Enicocephalus* was so named by Westwood, and followed by Stål in 1858. It was first altered to *Henicocephalus* by Stål in 1865, *Hemiptera Africana*, iii, p. 166.

2. For *Systelloderus*, Blanchard, read *Systelloderes*.

3. For *curculis*, Karsch, read *curculio*.

Add:—

sp. 13—*fulvescens*, Westw., *l.c.* p. 23, from animé.

sp. 14/18—*annulipes*, *angustatus*, *concolor*, *emarginatus*, and *pilosus*, Champion, *Biologia*, *l.c.*, pp. 159 *et seqq*; Central America.

sp. 19—*Mac-lachlani*, here described from New Zealand.

St. Abbs, Worple Road, Wimbledon :

June, 1901.

* See figure of *H. pellucidus* (Horváth) in *Revue d'Entom.*, 1888, plate I; and the figures in the *Biologia*, *l. c.*

NOTES ON A FEW DAYS' COLLECTING (*COLEOPTERA*) AT MADEIRA.

BY M. CAMERON, M.B. (LOND.), R.N.

I have recently had the good fortune to pay a second visit to this interesting island, arriving at Funchal, the chief town, on February 10th.

Funchal is situated on the south coast, and is backed by hills over 4000 feet in height. The immediate neighbourhood of this place is densely cultivated, chiefly with sugar cane, bananas, and ordinary garden produce, and the soil is very fertile. The town itself boasts over 20,000 inhabitants. There are several good English hotels, and the English Reading Room is well stocked with books, the most interesting from a beetle-hunter's point of view being Wollaston's work on the *Coleoptera* of the island. In the Portuguese College is a small museum, originally worked up, I believe, by Padré Schmidt, evidently a most practical naturalist, if we may judge from the beautiful specimens of stuffed animals of all kinds found in the island. There is also a small collection of *Lepidoptera*, and a few of the more striking insects, but evidently no great attention has been paid to this group, and it is to be feared that they will not improve, as there appears to be no one to keep alive an interest amongst the students.

Being built on the slope of a hill the streets are fairly steep; they are paved with small round cobbles, and the "cabs" are on runners and drawn by a pair of bullocks, a not uncomfortable way of travelling, though somewhat slow.

An elevator-railway runs up to the Belmont Hotel, which is situated about 2000 feet above the sea level, but as there are very few trains I usually walked along the track, as a certain amount of collecting can be done on the way.

Under the stones on the banks of this railway *Scarites abbreviatus*, Dej., and *Hadrus cinerascens*, Woll., occur commonly, and in the pine-wood about half way up *Helops confertus*, Woll., is plentiful under the stones and loose bark. A solitary specimen of *Oxyomus brevicollis*, Woll., was taken under a stone in this region. Leaving the Hotel below, and taking the road to the right one enters another pine-wood at a level of 2500 feet above the sea. Here the difference in the temperature is quite appreciable, and by searching under the stones the following were taken:—*Calathus complanatus*, var. *a* (this is the slender brownish-red form), in some numbers; *C. vividus*, Woll., a single specimen; *Zargus Schaumi*, Woll., not rare; *Argutor robustus*, Woll., several; *A. curtus*, Woll., a few; *A. gracilipes*, Woll., one or two; *Othius strigulosus*, Woll., one, and *Omyia Waterhousei*, Woll., eight or nine. Under dry vegetable rubbish near a path I found *Conurus pubescens*, Payk., *Homalota atramentaria*, Gyll., *H. philonthoides*, Woll., *H. obliquepunctata*, Woll., *Falagria obscura*, Er., *Xantholinus punctulatus*, Payk., *Ptenidium apicale*, Sturm, *Anthicus*

hispidus, Rossi, *A. tristis*, Schmidt, *A. instabilis*, Schmidt, *Lathridius nodifer*, Westw., *Dromius obscuroguttatus*, Duftsch., *Bradycellus fulvus*, Marsh., and *Blechnus glabratus*, Duftsch. Below the bark of an old pine stump a couple of the curious *Tarphius compactus*, Woll., were found, and running across a path what appears to be *Bembidium lampros*, Herbst, but this insect was apparently not found by Wollaston.

On another day a trip was made to the eastward, to Brazen Head, with the hopes of obtaining *Omasus Wollastoni*, Heer, which was originally discovered there, but without success; in fact search under the stones at that point disclosed nothing but *Scarites abbreviatus*, Dej. A return was then made towards more cultivated ground, where in some rotting cactus the following were taken:—*Oxyptoda litigiosa*, Heer, *Carpophilus mutilatus*, Er., and *Oxytelus adveni*, Sharp. This latter is an interesting capture. The species was described by Dr. Sharp in a paper on the "Coleoptera from the Hawaiian Islands" (Trans. Ent. Soc. Lond., 1880), as found on the low grounds of Oahu, and believed by him to be introduced there. It is a striking insect, coloured black and red, and not likely to be overlooked. By sweeping the following were captured: *Psylliodes hospes*, Woll., *Apion sagittiferum*, A. malw., *Ceuthorrhynchus quadridens*, Panz., *Olibrus consimilis*, Marsh., *O. bicolor*, Er., *Hypera murina*, F., *Arthrolips piceus*, Com., *Scymnus minimus*, Rossi, *S. flavopictus*, Woll., *Xenostrogylus histres*, Woll., *Meligethes picipes*, Sturm, *Atlantis australis*, Woll., *Caulotrups lucifugus*, Woll., *Cilea silphoides*, F., *Ptinus mauritanicus*, Luc., *Corticaria curta*, Woll., *Sitophilus oryzae*, F., and *Pteropus rugosus*, Woll.

The Santa Luzia River, a small swift-running stream passing through Funchal to the sea, is, I should think, well worth working in its course above the town, but unfortunately I was unable to devote more than an hour or two there, with the following results, from amongst the stones along the sides:—*Bradycellus excultus*, Woll., *Tachys bistriatus*, Duftsch., *Harpalus distinguendus*, Duftsch., *Stenolophus teutonius*, Schr., *Parnus prolifericornis*, F., *Pristonychus complanatus*, Dej., and the very interesting *Bembidium curvimanum*, Woll., of which a single specimen occurred. Amongst the wet moss, *Stenus providus*, Er., *S. guttula*, Müll., and apparently *S. similis*, Herbst (although this insect is not recorded by Wollaston), and *Ellipsodes glabratus*, F.

A trip was made on the 16th up the mountains to above the pine level, where the giant heath begins to assume its largest proportions, for the purpose of obtaining *Olisthopus erice*, Woll., whose habitat is beneath the papery bark of this shrub. Unfortunately, on arriving at the Belmont Hotel, where our horses were awaiting us (and breakfast likewise), we found the rain to be falling, and in a very short time were soaked through, but in due course arrived at the hunting-grounds, nearly 4000 feet up. To obtain this insect a "Bignell's tray" is practically essential, the nature of the ground making a sheet very inconvenient to use, and the bark is stripped off over it. By this means a very fair number were secured, together with *Atlantis lamellipes* Woll., *A. noctiragens*, Woll., *Dromius insularis*, Woll., *D. sigma*, Rossi, and *Acalles dispar*, Woll.; whilst under stones a single *Calathus fuscus*, F., and the robust form of *C. complanatus* (var. ♂) were taken, the series of the latter being made complete on the way back by collecting the intermediate forms. Had the day been fine the view must have been magnificent, as it was a few yards was the extent of one's vision.

Another afternoon was profitably spent to the west of the town, on the cliffs, where amongst damp vegetable *débris* many specimens of *Oxyomus Heinekenii*, Woll., were found, and amongst some heaps of dry manure mixed with dead leaves, etc., *Trechus finicola*, Woll., was taken in some numbers, together with *Sunius angustatus*, Payk., *Boromorphus maderæ*, Woll., *Apotomus rufus*, Dej., *Lithocharis ochracea*, Gr., *Homalota coriaria*, Müll., *Xantholinus punctulatus*, Payk., *Dactylosternum abdominale*, F., *Acritus minutus*, Herbst, *Anthicus instabilis*, Schmidt, *Typhæa fumata*, F. (a rare insect here, according to Wollaston, and I only found one example), *Litargus pilosus*, Woll., and *Cryptomorpha musæ*, Woll.; this latter is, however, better obtained by stripping the banana leaves from the stems over a tray, when any number can be taken. Amongst stones here *Calcar elongatum*, Herbst, was pretty common, and two or three *Laparocerus morio*, Schönh., *Sunius bimaculatus*, Er., and a broken specimen of *Atlantis lunatus*, Woll., were picked up.

My last excursion was again above the Belmont Hotel, and here, by sweeping, *Cryptocephalus crenatus*, Woll., and *Psylliodes vehemens* (var. β), Woll., were taken, whilst under stones *Tarus lineatus*, Schönh., *Olisthopus maderensis*, Woll., and *Anchomenus albipes*, F., fell to my lot. Beating the pines yielded *Pissodes notatus*, F., plentifully, and a small *Cryptocephalus* (? sp.), much more sparingly, whilst returning townwards I picked up a single specimen of *Atlantis vespertinus*, Woll.

Such (except for several species of the genus *Homalota* not yet identified) were my principal captures during a few days' stay on excursions limited necessarily to the neighbourhood of Funchal itself, and it is hoped that the list of localities may perhaps prove useful to subsequent visitors.

H.M.S. "Cleopatra," Particular Service :

June 14th, 1901.

NOTES ON CERTAIN PALÆARCTIC SPECIES OF THE GENUS *HEMEROBIUS*:

H. INCONSPICUUS, McLACH., AND *H. PELLUCIDUS*, WALKER.

BY KENNETH J. MORTON, F.E.S.

There remain to be noticed a few relatively small forms of *Hemerobius* differing from those already referred to, in having the last ventral segment of the ♂ produced into a large subgenital plate (*lamina subgenitalis*). The appendages are also rather different, but the usual furcate type can be traced, although the lower branch appears to be somewhat in the form of a lateral outgrowth. These insects divide themselves into two easily distinguished groups:—

I.—With two radial sectors in fore-wings. Lower branch of appendages not cleft.
This group contains *H. elegans*, Steph., and the allied forms.

II.—With three sectors. Lower branch of appendages cleft at apex. This group consists of *H. inconspicuus*, McLach., and *H. pellucidus*, Walker.

With regard to *H. elegans*, there is considerable difficulty in

arriving at satisfactory conclusions as to the value of the various



forms which have been placed under this name and that of *H. parvulus*, and Mr. McLachlan has already noticed the uncertainty which exists as to the real importance of these forms (Trans. Ent. Soc. Lond., 1898, p. 164). As he has so recently failed to dispel the obscurity surrounding this question, it would be superfluous on my part to attempt to do so, and we must accordingly await the accumulation of further observations and material. Figures of the ♂ appendages, drawn from examples of varying appearance and from different localities (Montpellier, the Pyrenees, and Algeria) do not help to solve the problem. A good series from each of many and widely separated localities is to be desired, but unfortunately these particular insects seem to occur for the most part singly.

I propose therefore, in the meantime, to deal with group II. It contains two very closely allied species; nevertheless, in good and well marked specimens of *H. incon-*

spicuous and *H. pellucidus*, no difficulty exists in their determination. The former has the wings with a more or less fuscous tinge, while in *pellucidus* they are greyish, and the gradate nervules are frequently clouded, which they never are in *inconspicuous*. But in old examples, and in others which are teneral in condition or ill-marked, the determination is not so easy, and the genital characters of the ♂ are useful aids.

The principal differences may be tabulated thus:—

H. INCONSPICUUS.

Wings with a fuscous tinge, with some resemblance to those of *Sisyrha fuscata* in fully matured specimens. Nervures unclouded.

H. PELLUCIDUS.

Wings greyish, in well marked examples with distinct cloudings about the gradate nervules.

With a long subgenital plate in the ♂.

Plate apparently much shorter (only dry specimens compared).

Viewed from side, apex of upper branch of appendages somewhat hook-shaped.

From same point of view, apex of upper branch of appendages nearly straight.

Viewed from side, apex of lower branch of appendages has the inferior prong of fork turned downward.

From same aspect, the two prongs are nearly parallel.

It must be admitted that the appendages in dry specimens sometimes fall down into the subgenital plate, and it is then extremely difficult, without detaching and preparing the abdomen, to detect the true structure. And I must also admit that some of the females are most difficult to place with certainty. This sex should be carefully studied with fresh-killed specimens in hand.

In this country *pellucidus* is decidedly southern in its distribution, and is best known from Dale's locality in Dorset (whence came the few examples I possess) and from Devonshire (Briggs). But both are probably wide spread over the greater part of Europe, and they go far north, both being known from Scandinavia. *H. pellucidus* has been found in such Alpine localities as the Val Bedretto, but the precise distribution of the two is still imperfectly ascertained.

EXPLANATION OF FIGURES.

- 1.—Apex of abdomen of ♂ *H. elegans* from Montpellier, from side.
- 2.—Appendage of ♂ *H. elegans* (*parculus*?) from Algeria, from above.
- 3.—Apex of abdomen of ♂ *H. inconspicuus*, from side.
- 4.—Apex of lower branch of appendage of ditto, from side (more enlarged).
- 5.—Apex of abdomen of ♂ *H. pellucidus*, from side.
- 6.—Apex of abdomen of ditto, from above.
- 7.—Apex of lower branch of appendage of ditto, from side (more enlarged).

13, Blackford Road, Edinburgh:

June 7th, 1901.

Pyrrosoma tenellum, Vill., in Merionethshire.—During the past month I collected in Merionethshire, and found amongst other things a good many specimens of that pretty little red dragon-fly, *Pyrrosoma tenellum*. As far as I know this is a new locality for the species, and also marks a considerable northern extension of its range. The precise locality is between Barmouth and Dyffryn on boggy ground between the railway and the sea. The existence of these bogs is sorely menaced, but so far the drainage of little spots here and there seems to remain a problem, and in such the bog myrtle still reigns supreme. There is no reason why the insect should not be found in suitable places all round Cardigan Bay. The hopes which the capture of this unexpected species raised were not altogether realized, but the

possibilities of Merionethshire as an Entomological hunting ground are certainly great. I shall probably give a full account of the results of my collecting there when I have had time to work out the large amount of material brought home.—KENNETH J. MORTON, 13, Blackford Road, Edinburgh: *August 3rd, 1901.*

Coleoptera in North Wales.—During the whole of the month of June I was in North Wales, and although the weather was not very favourable for collecting, I met with a few *Coleoptera* which seem worthy of mention.

At Tan-y-bwlch, in the Festiniog Valley, I got *Gyrinus minutus* and *Hydroporus 12-pustulatus* by fishing in the ditches, while *Agabus nitidus* was tolerably common under stones in the streamlets on the hill-sides. A dusty fungus on a dead pine produced thirteen *Conipora orbiculata*, while under the bark of the same tree were *Scydmaenus elongatus* and *Agathidium atrum*. Among my other captures in the same neighbourhood were *Silpha thoracica*; *Anthobium sorbi* (common in one small spot on the hills); *Corymbites impressus*; *Lacon murinus*; *Athous vittatus*; *Helodes marginata*; *Telephorus alpinus*, *abdominalis* and *flavilabris*; *Malthodes mysticus*; *Apion scutellare*; *Liopus nebulosus*; *Strangalia melanura*; *Clythra 4-punctata*, and *Batophila rubi*. *Phyllopertha horticola* was in extreme abundance (I might have taken hundreds of thousands), and was followed later on by *Hoplia philanthus* in lesser numbers, but still in profusion. And the males of *Lampyrus noctiluca* simply besieged my bedroom as long as the candles were lighted, even forcing their way through the cracks in the window frame. I took ten specimens in about three minutes on one occasion, and then watched their pale phosphorescent lamps darting to and fro above me as I lay awake in bed.

On Snowdon, on June 27th, *Miscodera arctica* was plentiful under stones near the summit, together with *Geodromicus globulicollis*, *Otiorrhynchus maurus*, *Pterostichus vitreus*, and a solitary *Acidota crenata*. *Nebria Gyllenkali*, *Aphodius lapponum*, and the usual mountain things were abundant. Two rather curious captures were a single *Lina ænea* crawling on the grass within a hundred feet of the summit, and a specimen of *Salpingus æratus* under a stone close by. *Chrysomela cerealis* I did not succeed in finding.

On the Harlech sand-hills, early in July, *Saprinus 4-striatus* was tolerably plentiful, with *Cicindela maritima*, *Aphodius nitidulus*, *Otiorrhynchus atroapterus* and *muscorum*, *Anomala Frischii*, *Corymbites æneus*, and a single *Lebia chlorocephala*. *Nacerdes melanure* was flying in the hot sun on the beach at Barmouth.—THEODORE WOOD, 157, Trinity Road, Upper Tooting, S.W.: *August 14th, 1901.*

Dryophilus pusillus, Gyll., in Cumberland.—Dr. Bailey's note in the July No. of this Magazine (*ante* p. 171) recalled to my mind that I had captured a male and female of this species last summer by evening sweeping in the Petteril Valley, about four miles to the south of Carlisle. On June 29th last I visited the locality again to try for more, and after a little work found it in fair numbers by beating the lower branches of some old well grown larches. In that particular part of the valley there is neither spruce nor Scotch fir. Of the thirty odd specimens I have set, all but one are females, but it is possible I was too late for the males. I am not aware of this species being recorded from the north of England before.—FRANK H. DAX, 6, Currock Terrace, Carlisle: *July 2nd, 1901.*

Note on the pairing of Lampyris noctiluca, L.—While golfing at Crookham, near Newbury, Berks, early in July, 1901, I took several males of this common beetle, attracted by indoor light. On the 5th five or six flew in, the first at 10.45, the last at 11.30 p.m.; the night was still, warm and windless. On the 6th one flew in during broad daylight at 6.30; none came later, the night being cool and windy. On the 7th, a fairly warm night with a slight breeze, two came in at 10 p.m. They flew noiselessly and generally settled on the table below the lamp, though occasionally on the walls, and one, apparently catching the light from above, gyrated around the ceiling, upon which it ultimately attempted in vain to gain a foothold, in circles wider, swifter and less erratic than those usually described by *Noctuae*. These males are often attracted to sugarers' lamps in woods, but are, I believe, rarely taken by any other method.

Knowing nothing of the method of pairing, I went out at 10.50 p.m., and at once discovered a female in an adjacent flower bed. The lower surface of its abdomen had the apical segment dully, and the next two, as well as a small spot in the centre of the base of the following one, brightly pea-green phosphorescent; there was no glimmer above. The males had one or two small apical dots of phosphorescence. The sexes were introduced at 10.55, when the male, attracted by the bright light, instantly attacked, and the female, fully extending its segments, disclosed bright phosphorescence at the base of the apical dorsal segment. Pairing was attained at the end of three minutes, during which the female lights were extended to their fullest power and then entirely faded out. During pairing the female showed no light whatever, but lateral spots of phosphorescence appeared on the male apical segment upon being disturbed; the male head reaches to the anterior margin of the 2nd, or sometimes only to that of the 3rd, abdominal segment of the female, the former's elytra protruding far beyond the female, and its abdomen being much deflexed; all male and female energy is entirely intersusceptive, and they will lie upon their backs motionless with legs wide stretched if overturned. Pairing ended at 11.13, having lasted fifteen minutes.

At 11.15 a second male was presented to the female, and obtained pairing instantly, though less eager in its attack than the first, probably on account of the absence of phosphorescence on the latter's part. After seven minutes the female became restive, but was pacified by its head being protected from the artificial light. At 11.36 pairing ended, the male being so much exhausted that only at the end of four minutes did it attempt to walk laggingly.

At 11.42 the first male again attained pairing, though without zeal, and remained in that position till 12.2, when it ended, though the male remained clinging to the female, in which pose they both remained till 9 the following morning, when the second male was dead, though all the other males taken were still lively. The first male, after the above two pairings, died no sooner than the rest of those taken at the same time, *i. e.*, about 48 hours after capture. The female unfortunately died on the 11th, probably from unnatural surroundings in the unusual heat, without ovipositing, nor could I find traces of eggs within the abdomen.—CLAUDE MORLEY, Ipswich: *July*, 1901.

Vanessa Antiopa in Shetland.—This afternoon, about 1.30, when collecting on

the sands of Burrafirth, North Unst, a specimen of *Vanessa Antiopa* passed within five feet of me; unfortunately my net was not in striking condition, and I had the unpleasant experience of seeing the creature sailing away from me. As there was a deep stream between me and the hills towards which it was flying I was not able to follow it; the wind was south-east by east at the time, and the insect was going with the wind. There is no doubt about the identity of the species, as I saw it quite clearly, the white border being very evident.—JAMES J. F. X. KING, Balta Sound, Unst, Shetland: *August 15th*, 1901.

Abundance of Lycæna argiolus near London.—Since the time that this species practically reinstated itself as a London insect it seems to have become more common each succeeding year. In my small garden here, less than six miles from London Bridge, it has been quite common since the last week in July. During suitable weather one or more can nearly always be seen on the wing. At this date most of the males are much worn, but the females are still in good condition. It has occurred to me that most of the examples are of small size.—R. McLACHLAN, Lewisham, London: *August 12th*, 1901.

On the oviposition of Lycæna Icarus.—Whilst walking over the cliffs yesterday I noticed a ♀ *Lycæna Icarus* settle, and watching her was struck by a peculiar rotatory motion of her secondaries; she rose and flew a short distance, and as she settled I dropped on the grass beside her, when the same peculiar revolving movement of her hind-wings again occurred, and at the same time she raised her abdomen and brought it down in a perpendicular position on to a little tuft of thyme, whereon she deposited an egg. The curious motion of the hind-wings, coupled with the perfectly perpendicular position of the abdomen, was new to me, and it may be of interest to other of your readers.—GEORGE T. BETHUNE-BAKER, Tintagel: *July 7th*, 1901.

Notes on the Lepidoptera of the Breadalbane district of Perthshire.—I am indebted to Mr. Kenneth J. Morton of Edinburgh for an introduction to the most beautiful part of the United Kingdom which I have yet seen. The grandeur of the scenery and the richness of the flora render the district a Paradise for Painters and Botanists, but for collectors of the *Macro-Lepidoptera* it is a disappointing one. With the exception of *Erebia epiphron*, *Cænonympha typhon*, *Bombyx callunæ*, *Boarmia abietaria*, and *Emmelesia blandiata*, I have only met with such generally distributed species as *Pieris napi*, *Cænonympha pamphilus*, *Vanessa urticæ*, *Argynnis aglaia*, *A. selene*, *Lycæna icarus*, *Acidalia aversata*, *Cabera pusaria*, *Fidonia atomaria*, *Larentia pectinitaria*, *Ypsipetes elutata*, *Melanthia albicillata*, *Melanippe rivata*, *M. montanata*, *Camptogramma bilineata*, *Odezia chærophyllata*, *Crambus pratellus*, *C. pascuellus*, *C. tristellus*, &c. *Lycæna artaxerxes* has been taken in the neighbourhood by Mr. Morton, but I have not met with it, nor with *Dasydia obfusca*, *Psodos trepidaria*, *Fidonia pinetaria*, *Larentia flavicinctata*, *Melanippe tristata*, *Carsia imbutata*, or *Crambus ericellus*. The three last named I have taken freely in Westmoreland, Cumberland or North Wales, and had they occurred in the district I could hardly have overlooked them. By far the commonest

butterfly in the district is *Erebia epiphron*, which occurred at the end of June and beginning of July in thousands in nearly all damp swampy places on the Breadalbane Mountains, at an elevation (according to the ordnance maps) of from 2000 to 3000 feet. In one locality, near Ben Lawers, I found them abundant as low down as 1650 feet, but as a rule they were only plentiful at a much greater elevation. *Cœonympha typhon* appears to be very local in the neighbourhood, as, with the exception of a few stragglers taken flying with *epiphron* at 2500 feet, I found them, in abundance, only in one peat bog or moss some miles to the west of Killin, at an elevation of about 1800 feet. *Argynnis aglaia* occurred sparingly in Glenloch and other valleys, and I also saw it on the hills near Crianlarich. *A. selene* was absent from the woods and mosses in the valleys, but occurred rather commonly on the hill sides at from 800 to 1500 feet. *Bombus callux* was plentiful on the hill sides, the males flying wildly about over the heather. *Emmelesia blandiata* occurred freely about old walls and on rocks both in the valleys and at a great elevation, but *Larentia pectinataria* was much commoner, flying high up the mountain sides in company with *epiphron*. Sugar has been a complete failure. Considering the varied natural conditions of the district, with its well wooded and well watered valleys, extensive peat bogs, and the vast extent of mountains, pastures and moors, the paucity of species is unaccountable, especially as the Rannoch district is only a few miles to the north of it.—H. Goss, Killin, Perthshire: July 30th, 1901.

Curious Nest of Odynerus.—About July 11th I noticed a wasp of the genus *Odynerus* go behind a picture in my room, and remain there for some time. On removing the picture I found a mud nest between the picture and the wall; it consisted of a number of irregular compartments, the sides of which were mud, the back the wall, and the front the picture. Part of the nest was destroyed in moving the picture, but the rest remained uninjured. Each compartment contained several green caterpillars, about half an inch in length, partially paralysed so that they could move somewhat, but not walk. When the front of the nest was removed by taking down the picture a number fell out, but others remained in the cells. I should mention that the nest was in all roughly three inches square, and there were over thirty caterpillars altogether. The wasp was much disturbed by the removal of the picture and flew aimlessly about for some time, and then disappeared through the window, and did not go on with the nest that day. However, on the next day it returned, and began removing the caterpillars from the open cells, and dropping them outside the room. When all the caterpillars were gone it began restoring the nest, covering each cell with a mud wall in front, and stocking each with several caterpillars before finally sealing it up. This went on for several days; it remained away at night but worked all day. I left home on the 15th, when the nest was half finished, but I hear that it went on till the nest was complete, and then started a new one under a picture less than two feet away. This one it also stocked with caterpillars, but made only the side walls of the compartments, the wall and picture making the back and front. After a time this picture was also removed, and it was found that many of the caterpillars were glued on to the wall by their posterior ends. This time the removal of the picture disheartened the wasp, which after appearing much disturbed for some time, went away and has not returned. The most interesting point seems to me to be the way the wasp, which

normally I believe builds in holes, &c., made mud covers for the cells of the first nest when the picture was removed; it is also remarkable that it should choose the inside of a room, at the side away from the window, especially when the window was closed from 7 p.m. to 8 a.m. at the time the nest was begun, though open continuously afterwards. On opening some of the cells of the first nest to-day (July 31st), I find in each a wasp larva about half an inch in length.—L. DONCASTER, Whinfell, Whirlow, near Sheffield: July 31st, 1901.

Reviews.

FAMILIAR BUTTERFLIES AND MOTHS: by W. F. KIRBY, F.L.S., F.E.S., &c. Small 4to, pp. 144, with 18 plates in colour. London, Paris, New York, and Melbourne: Cassell and Co., Limited. 1901.

Those who require a cheap, handsome, and reliable "Butterfly Book" for the drawing room table cannot do better than obtain this. It is well got up, well printed, and the figures are mostly excellent and not too highly coloured. It is not a scientific book, but consists of a series of 216 figures in colour (on 18 plates), to which the text has been written. The greater part of the species receiving attention are British, but a few have not yet been found in these islands, nor are likely to be. It is curious that the author, with his wide experience, cannot get rid of the idea that British insects are not European. He commences his Preface by apologetically saying he has added a small selection of "European" species, and then goes on to explain that these are "Continental." It must be understood that the figures go no further than the *Geometridæ*, and that the rest of the series is dismissed in about 16 pp. of text.

THE STRIDULATING ORGANS OF WATERBUGS (*Rhynchota*), especially of *Corixidæ*: by G. W. KIRKALDY, F.E.S. Journ. Quekett Microsc. Club, Ser. 2, Vol. viii, No. 48. April, 1901. Plates III and IV.

This is an interesting paper on the above subject, and is illustrated by some very good outline figures of the pala, &c., of the British *Corixæ*. The author considers that the stridulating noises heard by various observers are caused by the friction of the comb of the front tarsus against a "stridulatory area" which the author has discovered on the inner surface of the front femora. This area is very clearly marked, and certainly would appear to be a modification for some such purpose, the only difficulty that confronts the writer is the very considerable gymnastic efforts which it appears to him the *Corixa* would have to go through to bring the pala in contact with this femoral area; but, on the other hand, the area is obviously adapted to some special purpose, and it is hard to see in what other way it could be useful, or what other part of the *Corixa* could act upon it. The author puts his views forward for criticism, and it is to be hoped that his paper will stimulate others to carefully observe the movements of the insect when stridulating. Unfortunately it seems to be hard to catch a *Corixa* in the act, and even when caught it would be very difficult to see whether the pala played on the rostrum or the femur. Whichever view is correct, Mr. Kirkaldy has put the facts as to structure, etc., clearly before his readers, and many of the structural details which he gives have not before been published.—EDWARD SAUNDERS.

Obituary.

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Eleanor A. Ormerod, LL.D., F.R. Met. Soc., F.E.S., born May 11th, 1823, at Sedbury Park, Glos., died July 19th, 1901, at St. Albans, Herts. She was the youngest (and the only survivor) of the family of ten children of Dr. George Ormerod, D.C.L., F.R.S., &c., of Sedbury. From her childhood she showed a strong taste for Natural History and other scientific pursuits. Some 30 years ago she commenced forming a collection illustrative of Economic Entomology in connection with the Royal Horticultural Society, and in conjunction with the late Mr. Andrew Murray; that collection is now in the Bethnal Green Museum. In 1879 she commenced (in conjunction with others) her annual "Notes of Observations on Injurious Insects," continued subsequently and down to 1899 as the annual "Report of Observations on Injurious Insects, &c.," the whole series of Reports containing an enormous amount of sound information for the benefit of those concerned. She also published a "Manual of Injurious Insects," 1881, and second edition, 1890; a "Text Book of Agricultural Entomology," which went through two editions; "Observations on the Ox Warble," 1885, and some other separate works; also papers in the publications of Societies, such as phenological observations in the Journal of the Royal Meteorological Society; and especially her Reports in the Journal of the Royal Agricultural Society, to which Society she acted for some years as Honorary Entomologist. Unfortunately this connection terminated unhappily. Relations between her and the executive of the Society became strained, and as it was apparently impossible to find a *modus vivendi*, she retired from the position. She was the first lady Fellow of the Royal Meteorological Society, and joined the Entomological Society of London in 1868. So lately as 1900 the University of Edinburgh (to which she bequeathed £4000) conferred on her the Honorary degree of LL.D. She had also many foreign honorary distinctions. A few years ago she lost her sister (Miss Georgiana S. Ormerod), who had been her faithful companion and fellow worker (especially in the way of illustrating her publications), and this no doubt proved a severe shock, but it was hoped that the Reports would have been continued with the co-operation of Mr. Newstead. This was not to be: a fatal malady had declared itself, and at the last she passed rapidly away.

Miss Ormerod was in many respects a remarkable woman—strong minded, self confident, possessed of untiring energy, and able to impart information in a manner in which it came to be appreciated by the class of readers for whom it was intended. Possibly there was noticeable an occasional tendency to exaggerate the evils on which she was writing: if this were intentional, her excuse no doubt was that it was done with the intention of calling more prominent attention to these evils. It is needless to add that all her work was purely honorary in its nature: it will be difficult if not impossible to fill the position she created, for there are few who have the means, time, inclination, and ability for such work.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *July 15th*, 1901.—Mr. H. WILLOUGHBY ELLIS, Vice-President, in the Chair.

Mr. J. T. Fountain showed a series of *Tæniocampa instabilis* to illustrate its wide range of variation. Mr. A. H. Martineau, *Bombylius* species = *canescens*? from West Malvern. Mr. H. Willoughby Ellis showed, in illustration of his paper, the following *Coleoptera*:—*Metæcus paradoxus*, *Aleochara fuscipes*, *Homalota trinotata*, *Xantholinus linearis*, *Cryptophagus pubescens*, and *Anthicus floralis*. Mr. Ellis then read a paper communicated by Mr. H. St. John K. Donisthorpe, entitled, "All that is known of *Metæcus paradoxus*," in which he gave an interesting account of its extraordinary life-history, &c.—COLBRAN J. WAINWRIGHT, *Hon. Secretary*.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *June 13th*, 1901.—Mr. H. S. FREMLIN, F.E.S., President, in the Chair.

Messrs. R. A. Adkin, Lingards Road, Lewisham, S.E.; R. Armstrong, Granville Park, Lewisham; A. W. Dodds, Stoke Newington; and W. Thornthwaite, Hersham; were elected Members.

Mr. R. Adkin exhibited living larvæ of *Acidalia marginepunctata* feeding on yarrow, and pointed out that the genus *Acidalia* needed considerable revision. Mr. Kemp, *Rhagium bifasciatum*, *Donacia bicolora*, *D. sericea*, *D. semicuprea*, *D. simplex*, *D. cinerea*, and *D. discolor*, all taken at the Field Meeting at Byfleet on June 1st. Dr. Chapman, the curious pupating burrow of *Scardia boleti*, showing the peculiarly constructed trap door, and also the cocoon of *Lagoa crispata*, which shows a trap door arrangement. Mr. Main, a batch of ova deposited naturally on a spray of *Myrica gale*. Mr. Lucas read the Report of the Field Meeting held at Oxshott on May 18th. Mr. Adkin gave an account of the Annual Meeting of the South-Eastern Union of Scientific Societies held at Haslemere.

June 27th, 1901.—Mr. F. NOAD CLARKE, Vice-President, in the Chair.

Mr. A. W. Pepper, of Horniman's Museum, Forest Hill, was elected a Member.

Mr. Ashdown exhibited specimens of *Anax imperator* and *Ischnura pumilio* taken in the New Forest, and which he afterwards placed in the Society's collection. Mr. Turner, an almost black specimen of *Amphidasys betularia* taken in Camberwell. Several other similar examples were also reported. Mr. West, the following *Hemiptera* from the river Ravensbourne:—*Microvelia pygmaea*, developed forms; *Gerris odontogaster*, *G. najas*, and *Hydrometra stagnorum*, developed and undeveloped forms. Mr. Enock, bred specimens of *Libellula depressa* and *L. quadrimaculata*, with var. *prænubila*, and read notes, together with larvæ of *Thecla betulae*, all from Epping. Mr. Harrison, long series of *Amphidasys betularia*, including six gynandrous specimens, all bred from ova laid by a New Forest parent.

July 11th, 1901.—Mr. W. J. LUCAS, B.A., Vice-President, in the Chair.

Mr. Kemp exhibited a short series of the Coleopteron, *Dytiscus punctulatus*,

taken by Mr. F. Enock at Wisley, together with the *Odonata*, *Brachytron pratense*, *Calopteryx splendens*, *Erythromma najas*, *Agrion pulchellum*, and *Ischnura elegans*, with var. *rubra*; the *Trichoptera*, *Phryganea grandis*, *Limnophilus marmoratus*, and *L. rhombicus*; and the *Neuropteron*, *Rhaphidia maculicollis*, all taken at the Byfleet Field Meeting. Mr. F. M. B. Carr, a series of *Thecla rubi* from Wrotham, Kent, including a specimen with a cream spot on each of the fore-wings. Mr. South, a series of *Zonosoma porata*, bred from a female taken at Oxshott, and read notes on an unusual brown appearance of some of the specimens; and an example of *Eurrhyncha urticata* with confluent spots, taken by a boy at Balham: on behalf of Mr. Mitford, he showed three varieties of *Melitæa Cinxia*, (1) having transverse lines of fore-wings absent, and confluent lines towards margin of hind-wings, (2) central spots of fore-wings confluent, (3) central transverse lines partially effaced. Mr. Montgomery, pupæ of *Leucophasia sinapis*, one specimen having a pink instead of a white longitudinal line. Mr. Bishop, living larvæ of *Eugonia polychloros*, and pupæ of *Euchloe cardamines*. Mr. Kirkaldy, a series of genera of the *Fulgorinæ* (lantern flies), showing the remarkable development of the head; a number of ornate species of *Rhynchota*, including the pale blue *Hansenia pulverulenta*, the pale green *Geisha punctatissima*, the delicate rose *Cerynia Maria*, and a number of coffee pests from Ceylon, &c. Mr. Colthrup, two striking vars. of *Smerinthus tilieæ*, (1) ground colour pale fawn on fore-wings with indistinct markings, pinkish tint on hind-wing, (2) ground of fore-wing dark brown with very intense green markings, the band represented by a small spot only. Mr. Lucas read the Report of the Field Meeting held at Byfleet on June 1st. Mr. Clarke read a few notes on a "Walk in his Garden," and showed various specimens, including a grasshopper which was not yet identified, and probably new.

July 25th, 1901.—Mr. A. HARRISON, F.L.S., in the Chair.

Mr. Kemp exhibited species of *Coleoptera* taken in the New Forest at the end of June, including *Donaria crassipes*, *D. versicolor*, *D. sericea*, *Strangalia nigra*, *Asemum striatum*, *Anoplodera serguttata*, *Liopus nebulosus*, and *Coccinella sedecimguttata*. Mr. Adkin, a bred series of *Lobophora polycommata* from larvæ taken near Brighton. Mr. Step, living larvæ of a species of *Cassida* found feeding on Hemp Nettle (*Galeopsis tetrahit*) on Wisley Common, Surrey. Mr. Turner, larvæ of *Macroglossa stellatarum* from Bromley, Kent, showing (1) the delicate pink full fed form, (2) the green form with white lines, (3) the very dark olive almost black form. Mr. Edwards, several species of *Papilio*, including *P. Agesilaus*, *P. Arche-silaus*, *P. Paris*, *P. Cresphontes*, *P. Phaon*, *P. Marcellus* and var. *Walshii*, and *P. asiaticus*. Messrs. Harrison and Main, a fine bred series of *Geometra papilionaria*, and a series of well marked *Tephrosia biundulata* var. *delamerensis*, both from Delamere Forest. Mr. Edwards, a box of insects just received from Bucharest, including examples of *Libellula quadrimaculata*, *Platetron depressum*, and *Centrotus cornutus*. Mr. Enock, bred series of the dragon-flies, *Anax imperator*, *Cordulia ænea*, and *Brachytron pratense*, the two former from Esher and the latter from Wisley.—H. J. TURNER, Hon. Secretary.

SPANISH MICRO-LEPIDOPTERA.

BY THE RIGHT HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S.

INTRODUCTION.

Any Micro-Lepidopterist taking stock of his collections and desiderata among European species must suffer from a mixture of uncertainty and covetousness when analysing the descriptions of new species published by the late Dr. Staudinger after his two expeditions to Spain in 1857 and 1858. The first and more important of these was confined to the southern portion of the country. Among *Tineidæ* no less than 12 out of 76 descriptions were founded upon single specimens and 8 others on 2 specimens only, while in many cases the amount of material was very limited. Many of the whole number have since been recognised and are known in a few collections, but the majority of the uniques are still unknown without access to the types. It was in the hope of meeting with some at least of these species that I started in December, 1900, for a six months' holiday in Spain, and devoted as much time as I could afford, among other occupations, to collecting.

A month's visit to Seville before and after Christmas, during which the weather was atrocious, produced very meagre results. No good wild or uncultivated ground could be found within many miles of the town, but at Coria del Rio old thatches were full of hibernated *Depressariæ*, while *Thiodia pædiscana*, Stgr., and *Lithocolletis chicalanella*, Stgr., were feeding in leaves of *Populus alba*.

A visit to Alcalar supplied a few more common species, and *Platyedra vilella*, Z., was again a common occupant of thatch. At Jerez the same methods yielded *Opostega spatulella*, HS., with hibernated specimens of the *Lithocolletis* already mentioned, and a small *Anybia* (?) *seeboldiella*, Rag.

Chiclana, the spot where most of Staudinger's unrecognised species were obtained, was the place at which I was most anxious to stay, but small-pox was prevalent and accommodation primitive; nevertheless, on December 15th, in a heavy downpour of rain, I spent about ten minutes by the road-side during a flying visit, and was fortunate enough to find larvæ of *Hypsolophus cisti*, Stgr., and cases of a *Colco-phora* on *Helichrysum*, the same cases obtained later from the same plants produced a species almost undistinguishable from *cælebipennella*, Z., but the cases are much narrower and straighter than those of this species from other localities.

Hearing glowing accounts of the climate, I started for Malaga,

and remained there for about three months, during which time flying visits were paid to Gibraltar, Tangier, Coto and Cala Moral, and again to Chiclana about February 20th. Never anywhere have I met with such persistent bad weather as during the greater part of my stay at Malaga, and indeed it dogged my footsteps on almost every excursion. At the beginning of March there was snow on the coast-hills in Morocco, opposite to Gibraltar! Whenever the rain stopped a strong wind made collecting impossible; my diary records from February 21st to March 3rd more or less wet on every day (usually more), the 27th being the only mention of "occasional sunshine" during the whole of this time I spent at Chiclana. Under such circumstances it is not surprising that many of Staudinger's species from this locality escaped me, but rather that *Phtheochroa simoniana*, Stgr., *Coleophora struella*, Stgr. (larvæ); one or more species of *Seythris*, *Polychrosis hibernana*, Stgr., and sundry other useful species, with a number of larvæ subsequently reared, rewarded a dogged but humid perseverance. The character of the country is very different from that of Malaga. Great tracts of young pine-forest cover the slightly undulating ground between the salt-marshes and the sandy dunes on the sea-coast. The undergrowth consists for the most part of various species of *Cistus* and *Helianthemum* with *Quercus coccifera*, *Daphne gnidium*, thyme and juniper—the latter only near the coast (two species, *macrocarpa* and *phænicus*), but *Tortrix cupressana*, Dp., + *nobiliana*, Stgr., was sought in vain among these, it was too early to expect it to be out. On the banks between the salt-pans were many interesting shrubs—*Limoniastrum monopetalum* (from which I bred what at present appears to be a new species of *Symmoca*), *Arthrocnemon fruticosum* (larvæ on this not reared), *Suaeda fruticosa* and *Statice ferulacea*. Other plants observed in the neighbourhood of more or less interest were *Drosophyllum lusitanicum*, *Paronychia argentea* (frequented by young larvæ of *Dissoctena granigerella*, Stgr.), *Asteriscus maritimus* (with larvæ of two species in the dry seed-heads, one subsequently producing an undetermined *Metzneria*), *Phlomis purpurea* (in the seeds of which were larvæ of *Phalonia moribundana*, Stgr., and a Blastobasid still undetermined), *Osyris lanceolata*, *Teucrium fruticans*, *Helianthemum halimifolium*, *Phaca bætica*, *Mercurialis* sp., &c., but this is not a botanical treatise, and I am indebted to the staff of the British Museum for the majority of these identifications. A great prize was a Pterophid (larvæ on *Phagnalon rupestre*), which subsequently proved to be that of the very rare and distinct *Alucita olbiadactyla*, Mill. The late M. Millière gave me one of the two specimens of this species in his col-

lection, and I had not since been able to find the species in any of my southern excursions, although I have frequently searched for it. This year I was fortunate enough to breed two from Chiclana, and to take others on the wing at Malaga. *A. olbiadactyla*, which is referred by Dr. Rebel to the genus *Gypsochares*, Meyr., is identical with the Andalusian species issued by Staudinger under the MS. name *leptodactyla*.

Being unable to visit Chiclana again, this excellent locality was left practically unworked, but somewhat similar ground and vegetation were subsequently found from April 22nd to the 25th at Coto; here again torrents of rain and a bad attack of lumbago interfered greatly with work as well as comfort, yet I found *Phalonia carpophilana*, Stgr., and *Holcopogon bubulcellus*, Stgr., abundant in the larval stage, the latter of all ages in dried cowdung as recorded by Staudinger from Kalisch's observations, and specimens of both species occurred on the wing. Berries of *Juniperus macrocarpus* and *phœniceus* were eaten by *Gelechia oxycedrella*, Mill., while almost every leaf of one particular cork-tree had from one to four mines of a *Tischeria*, which requires very careful comparison with *complanella*, Hb., and its allies. It resembles *decidua*, Wk., in size, and *dodonæa*, Stn., and *complanella*, Hb., in the presence of a dark spot near the base of the fore-wings on the underside; *Gelechia suædella*, Rdsn., and *Polychrosis hibernana*, Stgr., also occurred. The exact situation of Coto is near the point of land south between the right bank of the mouth of the Guadalquivir and the sea—thus immediately below the gigantic marshes of the Marisma, which abound with wild-fowl of all kinds. The ground is preserved for game, red-deer and wild boar being abundant. At one view I calculated there were no less than 5000 flamingos in sight, some rising like a pink cloud on the horizon, others feeding in long lines about the marsh, others flying overhead with hoarse cackling, looking all legs and necks. It was interesting to watch their movements through a good telescope which I brought in the hope of meeting with the wild camels—my guide told me he saw seventeen in one group in March, but they were about 15 miles farther north.

At Gibraltar an hour spent in the rain at the foot of the rock on March 2nd produced larvæ of *Epermenia* on *Umbelliferae*, of a small *Eucelis* on *Alyssum maritimum*, with an *Elachista* and a few other things flying.

At Tangier and Cape Spartel in the following month the persistent gales rendered collecting almost hopeless. Single specimens of a few interesting things were beaten out of fences and shrubs, notably

Solenobia pretiosa, Stn., and a curious variety or species of *Eriocottis*, apparently differing from *fuscanella*, Z., *andalusiella*, Rbl., and *pyrocoma*, Meyr. The most interesting thing found was a larva mining patches on leaves of a very tall mallow, which after brief pupation produced a new species of *Dialectica*, somewhat similar to *Gracilaria omisella*, Z.; this larva is brightly coloured, with transverse red bands, greatly resembling that of *Coriscium brongniardellum*, F., when full-fed. One or two larvæ of *Teratopsis permixtella*, HS., were found on *Phillyrea* near Cape Spartel in their leaf-rolling stage, and easily reared. On this side of the town the country is for the most part covered with *Cistus*-brush, but on the east side *Quercus coccifera* is abundant, after about a mile or two of the heavy sand of the shore, and on the leading shoots of this oak several larvæ (apparently of a Tortricid) were collected, which have not yet produced the moths, and a single *Coleophora*-like case, exactly corresponding to those described by Dr. Staudinger from Chielana (*vide* Stn. Tin. S. Eur., 151), and attributed to his genus *Epidola*. Unfortunately this also has failed to produce a moth, but the larva of *Epidola* is now known to occupy a short piece of hollow stem, and the dark brown cases on *Quercus* must certainly belong to some species of *Coleophora*.

The only other excursion of any importance made from Malaga was on a visit to a friend on the coast near Cala Moral on the road to Gibraltar. The vegetation here was very rich, especially in numerous species of *Cistus*. Among the best captures were the following:—*Gelechia plutelliformis*, Stgr., *Coleophora solidaginella*, Stgr. (larvæ abundant, since reared), *Aproærema lamprostoma*, Z., originally described from Syracuse, which I now find equals my South African *Gelechia zulu* [Wlsm., Tr. Ent. Soc. Lond., 1881, 261-2, Pl. XII, 30], a single specimen of *Orneodes perittodaetyla*, Stgr., *Palatodora lineatella*, Z., an *Eriocottis* having the pale dorsal margin of *andalusiella*, Rbl., but distinctly greyer and less shining than that species, the costa also less arched. A very similar form from Malaga does not possess the dorsal streak. I have seldom seen anything more beautiful than the flowers of *Cistus crispus* at this place. The brilliancy of their colouring in a carpet of low growth was almost dazzling.

Thus far I have mentioned short visits paid to various places during the time that my head-quarters were established at Malaga. One trip to the Sierra Frigiliana in pursuit of the Spanish Ibex (*Capra hispanica*) during which entomology was almost entirely neglected needs no mention here. My recollections of Malaga, except

perhaps during the latter half of the month of April, are a continuous record of wind and rain. When it didn't rain it blew, and when it didn't blow it rained, and when everybody said it was going to be fine it did both. Nevertheless, I managed to make myself well acquainted with every hill and valley along the coast-line for many miles to the east of the town, where the ground was more favourable than to the west. Among larvæ successfully reared were several interesting things, but a rather large proportion failed from being collected when too young. Among the former were *Gelechia hyoseyamella*, Mill., on *Hyoscyamus albus*. *Aristotelia frankeniæ*, Wlsm., on *Frankenia lævis*, a *Metzneria* on seeds of *Asteriscus mauretanicus*, a probably new *Hypatima* from under bark of a dying fig tree, a small *Coleophora* on *Calendula arvensis*, which also ate the leaves of a grass, *Tortrix perampiana*, Hb., not uncommon in leaves of *Scilla (Urginea) maritima*, *Hypsolophus limbipunctellus*, Stgr. (= *millierellus*, Stn.), on *Cistus crispus* and *salviæfolius*, a new *Nepticula* on *Anthyllis cytisoides*, a new *Coleophora* on *Genista umbellata*, *Phalonia moribundana*, Stgr.; and a *Blastobasis* from seeds of *Phlomis purpurea*, *Acrolepia solidaginis*, Stgr., *Coleophora lineolea*, Hw., and *Alucita spilodactyla*, Crt., from *Marrubium*, &c. Among the latter, perhaps not all yet beyond hope, I have in my bottles a *Coleophora* on *Helianthemum lavandulæfolium*, and another on *Lithospermum* (possibly only the *Echium*-feeding *onosmella*, Brahm), two species of *Coleophora* on *Anthyllis cytisoides* with similar cases but of different sizes, which will be again mentioned when dealing with further occurrences at Granada, a *Loxopera*, probably *bilbaënsis*, Rslr., in stems of *Crithmum maritimum*, and *Crinopteryx familiella*, Peyr. (found also near Seville). Among captures on the wing were several interesting species of *Coleophora* and *Scythris* not yet fully identified, another *Eriocottis* allied to *fuscanella*, Z., a single specimen of a *Cosmopteryx* intermediate between *lienigiella*, Z., and *semicoccinea*, Stn., certainly new to Europe, but greatly resembling the forms prevalent in Malaysia. *Eidophasia syenitella*, HS. (also abundant at Granada), *Sophronia exustella*, Z., *Protasis pleurotella*, Stgr., *Ancylis sparulana*, Stgr., *Metzneria castiliella*, Mschl., and a new species of the same genus (the larva of which was afterwards found on *Asteriscus mauretanicus*), with many others of minor importance.

When the weather improved I started for Granada, an entomological Paradise, where the indulgence of one's acquisitive propensities threatens long hours of critical museum work for time to come. Here I spent the months of May and June, reaping a somewhat rich harvest, which might have been richer if more time had been devoted to the

pursuit. Here *Protasis glitzella*, Stgr., was abundant, with *Phalonia roseofuscia*, Mn., *infantana*, Knl., *Pharmacis meridiana*, Stgr., *Loxopera tornella*, Wlsm., and a *Phalonia* allied to *languidana*, Mn., caught and bred from *Helichrysum*. *Brachodes cassandrella*, Stgr., which can scarcely be considered more than a geographical subspecies of *vernetella*, Gn. (although I could undertake to separate them at sight), *Tinea simplicella*, HS., singly as usual, *chrysopterella*, HS., very abundant locally, a *Tineola* distinct from but closely allied to *crassicornella*, Z., also abundant, *Nematois albiciliellus*, Stgr., *Cerostoma persicella*, Schiff., some good *Depressariæ* and *Gelechiadæ*, including the conspicuous *Enolmis ratella*, HS., and *Stomopteryx deterrentella*, Z., *Pterolonche pulverulenta*, Z., and *Megacraspedus dolosellus*, Z., a new species of *Didactylota* which I had previously met with in the Pyrenees, *Metzneria aprilella*, HS., *Leeithocera pallicornella*, Stgr., already recorded from the same locality, *Pleurota heydenreichiella*, HS., which is now (rightly or wrongly?) sunk as a variety of *honorella*, Hb., and other species of the same genus about which I must equally reserve my opinion for the present. Larvæ of *Coleophora spumosa*, Stgr., on *Dorycnium suffruticosum*, the rare *solenella*, Stgr., on *Artemisia* and *ononidella*, Mill., both less abundant here than in the Pyrenees. *Coleophora restalella*, Stgr., caught and bred from the larger of two cases on *Anthyllis cytisoides*; here I bred also a different species from the smaller cases, corresponding exactly to a series taken among the same plant at Malaga, where they were very abundant. *Micropteryx isobasella*, Stgr., of which I did not previously possess males—the male has a distinct purple mark at the base of the fore-wings which is consistently absent in the female, thus exactly reversing the rule in *calthella*, L. *Micropteryx imperfectella*, Stgr., to which a peculiar history attaches—two species were mixed in Standinger's series, and after rightly describing one of them (*imperfectella* No. 1) he amended his description in 1860, referring to Herrich-Schäffer's figure as correctly illustrating his species. I was fortunate enough to meet with both forms, one at Tangier the other at Granada. They are undoubtedly distinct, but the original description must be taken to fix the name in its application to No. 1, and Herrich-Schäffer's figure (n. Schm., fig. 113) plus Standinger's description of *imperfectella* No. 2 requires a new name, and **jacobella**, n. n., seems to fit the case. [Experience teaches that it is unwise to delay the correction of an error when drawing attention to it, and that it is better to apply than merely suggest a new name.] *Lithocolletis joviella*, Cnst., may also be worth mentioning as not hitherto recorded from Spain, *Bryophaga deli-*

catella, Rbl., and a new and distinct *Trifurcula* abundant among *Retama sphærocarpa*.

The only excursion made from Granada was to the Sierra Nevada in an easterly direction. I camped at a height of nearly 6000 feet, and collected for two days with results better in quality than in quantity. I am not prepared at present to deal with the species obtained, but the most extraordinary sight I have ever seen were the myriads of *Lithocolletis adenocarpi*, Stgr., which thickened the air like innumerable midges on the slopes below my camp—each blow of a stick upon one of the bushes would dislodge thousands, and it was not until the bush had been well thrashed that their numbers appeared to diminish. The mines of the larvæ were in nearly every leaflet, and in spite of the quantity already out, a few dozen mines collected at random produced a good series of bred specimens, many of which came out before reaching camp. Here I touched the edge of the snow-line, and as the weather was very hot a mouthful of snow was very refreshing. The nights were warm and quite dry, there was absolutely no dew, which was fortunate, as there was equally no tent and practically no covering. The early morning about sunrise was as usual in mountain districts as good or better than the evening for collecting, but during the day nothing could be done but search for larvæ.

This is merely a hasty summary, and by no means represents a study of the 4000 or more specimens which I brought back, moreover, many pupæ are yet under observation. My Italian valet, Barberi, was of great assistance to me in collecting. He had a quick eye, and soon learned to recognise certain genera and even species, and to discriminate between such as had occurred before and such as had not been observed; he was especially successful in finding larvæ whether under special or merely general instructions.

The nomenclature used in this short account is advisedly employed (although in many cases it differs) from that adopted by Staudinger and Rebel; on this subject more will be written when the species are worked out, and when further notes and descriptions can be published.

(To be continued).

BALEARIC INSECTS.—HEMIPTERA-HETEROPTERA

COLLECTED IN MAJORCA AND MINORCA (MARCH AND APRIL, 1900) BY E. B. POULTON, OLDFIELD THOMAS, AND R. I. POCKOCK.

BY EDWARD SAUNDERS, F.L.S., &c.

Solenosthedium lynceum, Fieb., 1 ♀, not localised, 1900 (Thomas and Pocock).

Eurygaster nigroocellata, Goeze, 1 ♀, Palma, Majorca, March 24th, 1900 (Poulton).

Graphosoma lineatum, L., 1 ♂, not localised (Thomas and Pocock).

Brachypelta aterrima, Forst., 2 ♂, Pollensa, N. Majorica, under stones, April 1st, 1900 (Poulton); Mahon, Minorca, April, 1900 (Poulton).

Sehirus morio, L., 1 ♂, Mahon, Minorca, April 7th, 1900 (Poulton).

Stenocephalus agilis, Scop., 2 ♂, 2 ♀, Miramar Grounds, N. W. Majorca (Poulton), March 27th, 1900.—1 ♀, Inca, Majorca, March 24th, 1900 (Thomas and Pocock). All these are of the variety with the apical half of the posterior femora black.

Lygaeus pandurus, Scop., Majorca. Many of both sexes taken in Miramar Grounds, March 27th, 1900; and outside Castle Bellver, elev. 400 ft., March 26th, 1900, all of the variety with milky-white unspotted membrane, like those from Algeria; five pairs captured *in cop.* in the latter locality (Poulton).—1 ♂, Inca, Majorca, March, 1900 (Thomas and Pocock).

Pyrrhocoris aegyptius, L., 2 ♂, 3 ♀, along road from Miramar to Valldemosa, N. W. Majorca, March 27th, 1900 (Poulton).—*apterus*, L., 1 ♂, Mahon, Minorca, April 6th; 1 ♀, Palma, Majorca, March 24th, 1900 (Poulton); ♂ ♀, Albufera, Majorca, April, 1900 (Thomas and Pocock).

Hydrometra stagnorum, Ltr., 1 ♂, 3 ♀, Soller, N. W. Majorca, March 29th, 1900 (Poulton); ♂ ♀, Inca, Majorca, March, 1900 (Thomas and Pocock).

Velia rivulorum, Fab., 2 ♂, 2 ♀ (maer.), 1 ♂ (brach.), and larval forms. ditch near Port of Pollensa, N. Majorca, April 4th, 1900 (Poulton); 1 ♂, 5 ♀, and larva, Inca, Majorca, March, 1900 (Thomas and Pocock).

Gerris najas, de G., 1 ♂ (maer.), Albufera, Majorca, April, 1900 (Thomas and Pocock).—*thoracica*, Schum., 1 ♂, Inca, Majorca, March, 1900 (Thomas and Pocock).

Ploiaria domestica, Scop., 1 ♂, Inca, Majorca, March, 1900 (Thomas and Pocock).

Pirates strepitans, Ramb., 1 ♀, Albufera, Majorca, April 15th, 1900 (Thomas and Pocock).

Lopus lineolatus, Brullé, 1 ♂, Palma, Majorca, outside Castle Bellver, March 25th, 1900 (Poulton).

Pachytomella Passerini, Cost., 2 ♂, 1 ♀, Mahon, Minorca, April 7th, 1900 (Poulton).

Pachyxyphus lineellus, Muls. and Rey, 1 ♂, Palma, Majorca, March 25th, 1900 (Poulton).

Nancoris conspersus, Stål, 2, Inca, Majorca, March, 1900, not localized (Thomas and Pocock).

Notonecta glauca, L., v. *maculata*, 5 and 2 larvæ, Mahon, Minorca, April, 1900 (Poulton); 7, Inca, Majorca, March, 1900 (Thomas and Pocock).

Anisops producta, Fieb., ♀, 5, Majorca, ditch, near Port of Pollensa, April, 1900 (Poulton).

As in the case of the *Aculeata*, a far larger number of species were obtained in June and July of the present year.

Woking: July, 1901.

AN ADDITION TO THE BRITISH STRATIOMYIDÆ, WITH THE
DESCRIPTION OF A NEW GENUS.

BY ERNEST E. AUSTEN.

Early in June of the present year I received from Dr. David Sharp, F.R.S., a few small larvæ or pupæ of the usual *terrestrial* Stratiomyid type, that is to say, presenting a close general resemblance in external appearance to larvæ such as those of *Xylomyia*, *Chloromyia*, or *Microchrysa*. They had been found by Dr. Sharp with a number of others on June 1st, in a decaying holly tree at Bank, near Lyndhurst, in the New Forest. In length the adult larvæ or pupæ measured some $6\frac{1}{2}$ mm., with a width of $1\frac{1}{2}$ mm. at their widest part (5th post-cephalic segment), and owing to their narrowness I at first expected that they would prove to belong to some species of *Beris*. Since our knowledge of the life-history of this genus is still confined to Walker's solitary statement, with reference to *Beris chalybeata*, Forst., that "the pupa had been found in moss,"* I rather hoped that I was about to have the opportunity of to some extent filling up the gap. The larvæ or pupæ were received on June 6th, and two days later all doubts were set at rest by the emergence of a little shining black fly, with a strikingly silvery looking thorax, which it was not difficult to identify as *Pachygaster meromelas* (*meromelæna*†), Duf., an addition to the list of British *Diptera*.

Other specimens subsequently emerged, and on June 11th I received a fresh supply of material from Dr. Sharp, including some larvæ which were smaller and paler than the rest, and evidently quite young. In the end no less than eight flies made their appearance, and among these were three males and five females.

Before proceeding to the description of *P. meromelæna*, it may be as well to glance for a moment at previous statements as to the life-history of species of *Pachygaster*, which as it happens are fairly frequent in dipterological literature.

The larvæ of *Pachygaster* appear to live exclusively in rotten wood. So long ago as 1828 the larvæ of *P. ater* (*atra*), Pz., were found by Schilling at the commencement of spring beneath the bark of *Pinus sylvestris*—"in sylvaticis pagi Lissæ." These larvæ, from which the imagines emerged within three weeks, were briefly described and figured by Schilling ("Beiträge zur Entomologie," I. Heft [Breslau, 1829], pp. 94—95, Taf. VIII, fig. 8).

* *Insecta Britannica, Diptera*, vol. i, p. 12 (1851).

† Since *gaster* is feminine, we must of course write *Pachygaster meromelæna*, *atra*, *minutissima*, &c., but for some reason all previous authors, from Meigen to Osten Sacken, have given specific names in this genus a masculine termination. In the present paper a specific name quoted for the first time is written in the old way, followed, if necessary, by the correct form in brackets, and the latter is adopted in all subsequent references.

Careel, who found the larvæ of *P. atra* in rotten wood in an elm tree near Paris, and is quoted by Macquart (Ins. Dipt. du Nord de la France—Asiliques, Bombyliers, &c., &c., p. 112), considers that development lasts more than one year, and probably more than two years.* Macquart (*op. cit.*, pp. 111—112) gives a description of the larvæ which Careel sent him.

According to Zetterstedt (Dipt. Scand., VIII, p. 2961 [1849]), both sexes of *P. minutissimus* (*minutissima*), Ztt., were bred by Boheman between May 6th and 10th, 1842, from pupæ found beneath the bark of old pine stumps.

Dufour found the larvæ, from which he subsequently bred the typical specimens of *P. meromelæna*, in rotten wood beneath the bark of an old dead poplar in S. W. France, in April, 1840, and the flies emerged towards the middle of the following June. The larva and perfect insect were described by Dufour in the "Annales des Sciences Naturelles," Seconde Série, T. XVI (1841), pp. 261—266, and figures of the former were given in Pl. 14 A, figs. 17—19. In his description of the larva Dufour speaks by mistake of *twelve* segments behind the head, whereas in reality there are but eleven; Dufour, however, considered the narrow margin behind the transverse stigmatic furrow on the eleventh segment as representing a twelfth.

In 1855 the species was re-described by Wahlberg (Öfvers. K. Vet.-Akad. Förhandl. Elfte Årgången [1854], pp. 212—213), under the name *Pachygaster orbitalis*. Wahlberg also seems to have bred the insect from larvæ in poplar wood, for he writes, "Hab. in ligno Populi caeso ad Gusum Ostrogothiæ." He adds, "Femina plures per annos a solstitio æstivali ad medium mensis Augusti haud raro observata, ex. gr. d. 1 Julii ad 10 Aug., 1840; mas ignotus." The reason for the latter statement will appear subsequently. Wahlberg points out that, in addition to the other characters, the species is easily distinguished by the silvery orbits from the four species previously known (*P. atra*, Pz.; *pallipennis*, Macq. [= *Leachii*, Curt.); *minutissima*, Ztt.; and *tarsalis*, Ztt.).

In his paper, entitled, "Histoire des Insectes du Pin Maritime" (Ann. Soc. Ent. France, 4^{ème} Série, T. X [1870], pp. 135—232, Pls. 1—5), Perris described the several stages of a species which he considered to be new, and designated *Pachygaster pini* (*loc. cit.*, pp. 208—212, Pl. 3, figs. 80—88). The larvæ of this species were found under the bark of pine trees attacked by those of *Tomicus* and *Hylurgus*, feeding upon the detritus and excrement left by the latter. According to Mik (Verh. z.-b. Ges. Wien, Bd. XXX [1880], p. 590), *Pachygaster pini*, Perris, = *P. minutissima*, Ztt. Mik states that he had received the species in some numbers from Herr F. Wachtl, who bred it from the black pine (*Pinus laricio*, Poir.) of the Vienna district in 1878.

In concluding these notes on the life-history of the various species of *Pachygaster*, it may be added that Perris (*loc. cit.*, p. 212) states that he has bred *P. pallidipennis* (= *P. Leachii*, Curt.) from larvæ living in a boletus found in hollow oak.

Since Dufour's original description of *P. meromelæna* is very

* In connection with Careel's surmise that the development of *Pachygaster atra*, Pz., lasts longer than a year, it may be noted that according to Westwood ("Introduction," II, p. 533), a larva of *Clitellaria ephippium* (= *Ephippium ephippium*, Fabr.) discovered by Von Roser, of Stuttgart, in a rotten nut tree, "although more than half-grown when found . . . was two years in arriving at the perfect state."

brief, besides being inaccessible to the majority of English Dipterists, the following re-description will perhaps not be considered superfluous:—

Pachygaster meromelæna, Duf.

Pachygaster meromelas,* L. Dufour:—"Annales des Sciences Naturelles," Seconde Série, T. xvi (1841). Zoologie, p. 266.

Length, $3\frac{2}{3}$ mm. ($1\frac{1}{4}$ l.); length of wing, $3\frac{2}{3}$ mm.; width of head in ♂ slightly more than 1 mm.

Shining black; thorax (including scutellum) in ♂ clothed with very short appressed silvery white hairs; in ♀ these hairs confined to a somewhat crescentic area, spreading out on side of thorax below, in front of the prominent post-sutural tubercle on each side; eyes wide apart in both sexes (front in ♀ nearly twice the width of that in ♂, and broader above; in ♂ practically uniform in width throughout), each bordered anteriorly with a conspicuous silvery-white stripe, extending well above base of antenna; mesopleura with a vertical stripe of short silvery-white hairs; halteres in both sexes white, the stalk infuscated; legs pale yellow, femora, except the tips, black; wings hyaline, the portion of the costa and of the first vein before the pale yellow stigma blackish.

Head and eyes shaped as in the ♀ of Pachygaster Leachii, Curt., conspicuously larger and broader than in the ♀ of *P. atra*, Pz.; the eyes are distinctly larger and more prominent in the ♂ than in the ♀, and the whole head is in consequence noticeably larger in the former sex. *Antennæ* in both sexes ochraceous, third joint blackish at the apex and on the inner side, considerably larger in the ♀ than in the ♂; *arista* blackish. *Eyes* in life with a median horizontal purple band, extending four-fifths of the way across from the front margin; posterior orbits in the occipital region practically invisible in the ♂ but somewhat more prominent in the ♀, though not produced to anything like the same extent that they are in the ♀ of *P. atra*. *Dorsum of thorax* finely punctured, with the post-sutural tubercle on each side, seen in *P. Leachii* but less noticeable in *P. atra*, very prominent; in the ♀ the anterior portion of the central area of the dorsum of the thorax is clothed with minute blackish hairs, which are much finer than the short silvery hairs clothing the same region in the ♂ and also seen on the sides in the ♀, in front of the post-sutural tubercles; posteriorly, between the tubercles and extending as far as the hind margin, the minute hairs in the ♀ have a golden hue. *Abdomen* closely punctured, clothed with minute blackish hairs.

In the infuscated area of the third joint of the antennæ each annulus is marked with a series of circular yellow spots, which perhaps indicate sense organs; these spots are quite conspicuous, even under a lens magnifying only ten diameters.

When the males described above were running about alive in a glass tube the silvery appearance of the thorax, due to the character of the hairs clothing it, was very noticeable.

The above description is based upon an examination of three males and five females bred from pupæ found with a number of larvæ

* *meros*, upper part of the thigh; *melas*, black.

by Dr. D. Sharp, F.R.S., on June 1st, 1901, in a decaying holly tree at Bank, by Lyndhurst, New Forest, Hants. Dr. Sharp was so good as to send me two separate consignments of larvæ and pupæ, the first on June 6th, the second on June 11th; the three males emerged on June 8th and 9th, one female on the 15th, three other females on the 18th and 19th, and yet another on the 28th.

As to the circumstances under which our specimens were obtained, the following extracts from Dr. Sharp's letters may be of interest. Writing from Bank on June 9th, 1901, Dr. Sharp said:—"I went to the tree immediately after breakfast this morning, as so many *Diptera* appeared yesterday for the first time that I thought these little creatures might be all gone. I am glad this was not the case. I at once secured two immature flies under the bark, and a few puparia. Many larvæ of sizes going down to about 1 mm." In a second letter from the same address on June 19th Dr. Sharp wrote:—"I have no belief in this fly being found again—certainly not above once in thirty years, and probably never here. The conditions are those of our rarest British beetles, such as *Eucnemis*." It is to be hoped that Dr. Sharp's fears may prove groundless, and that the species may be reported ere long from other localities in the British Islands.

In his paper on the European species of *Pachygaster*,* pp. 264, 267, Loew states that *Pachygaster argentifer* (*argentifera*), Jænnicke (Berl. ent. Z., X [1866], p. 221), is a synonym of *P. meromelæna*, Duf. This, however, cannot be so if my interpretation is correct, since Jænnicke states that in his species the halteres in the ♂ are blackish with black peduncle, though white in the ♀. Moreover, the size that he gives ($2\frac{1}{2}$ mm.) is too small for *P. meromelæna*, and, although he describes both sexes, he gives no indication that the eyes are separated in the ♂; the eyes in the ♀, and apparently in that sex alone, are bordered with silver just as in *P. meromelæna*. Jænnicke states that he has bred both sexes of *P. argentifera*, and says that the ♀ is much more common than the ♂.

With reference to *P. meromelæna*, Duf., Loew writes (*loc. cit.*, p. 266), "Of this species I possess a ♀ from Herr Dufour's collection, two ♀ ♀ from Germany agreeing with it, and a ♂ taken near Magdeburg; that the latter belongs to the ♀ of *Pachygaster meromelas*, in spite of the black coloration of its halteres, which are white in the ♀, I do not doubt, in view of the agreement in all other characters."

One is naturally loth to differ from so great an authority as Hermann Loew,* and it is only after long and anxious consideration that I have come to the conclusion that the three specimens described

* H. Loew, "Revision der europäischen *Pachygaster*-Arten:," *Zeitschrift für die Gesamten Naturwissenschaften*, Bd. XXXV [1870], pp. 257-271.

* Even Homer nods, however, and if further illustration of the well known fact be needed, it may be observed that in his remarks on Schiner's statement that in *Pachygaster Leachii*, with the exception of the entirely hyaline wings and wholly yellow legs, all else is "as in *P. ater*," Loew (*loc. cit.*, p. 261) gives no indication that he himself has noticed the difference in the shape of the head.

above, with small antennæ, separated eyes but narrow fronts, and thorax entirely clothed with silvery pile, are undoubtedly males. Unfortunately no external genitalia are to be seen. That my three males belong to the same species as the five females there can of course be no question. As to the differences, suffice it to say that in both *P. atra*, Pz., and *P. Leachii*, Curt., the third joint of the antennæ is much smaller in the male than in the female, while a difference between the sexes in the coloration of the hair clothing the thorax is no novelty in the *Stratiomyidæ*.^{*} Another very significant point is the fact that, as has already been shown, the three specimens regarded by me as males emerged from the pupa from six days to a week before the first of the females.†

The type of the genus *Pachygaster*, Meigen (Illiger's "Magazin für Insektenkunde," II [1803], p. 266) is *Nemotelus ater*, Pz. In this species the eyes are small, and in the male meet together on the front anteriorly. The head of the female, viewed from the side, has a peculiar flattened and also an elongated appearance, owing to the fact that the posterior orbits are produced on each side into a prominent tumid ridge. In the male this ridge is much more pronounced below than above, and the head is less flattened from above downwards. In *Pachygaster Leachii*, Curt., the eyes are larger and more prominent in both sexes, while the posterior orbits are not developed at all in the male, and only very slightly in the female below; consequently the head of *P. Leachii* is very different in shape from that of *P. atra*. Whether, owing to the undeveloped condition of the posterior orbits, and the differences in the size and shape of the eyes and head generally, *P. Leachii* should be allowed to remain any longer in the same genus as *P. atra* (although the males of both species are holoptic), is a question beyond the scope of the present paper, and one that may be safely be left to be decided by Mr. Verrall in the next volume of his "British Flies." As regards *Pachygaster meromelæna*, however, there can be no doubt at all that, since the eyes in the male are separate, the species cannot possibly be congeneric with *Pachygaster ater*, but must be referred to a new genus. I therefore propose for it the name *Neopachygaster*, and the new genus may be briefly characterized as follows:—

NEOPACHYGASTER, *gen. nov.*

Agreeing generally (venation, shape of body and antennæ) with Pachy-

^{*} The common *Odontomyia viridula*, Fabr., may serve as a case in point.

† Whether it is the rule among *Diptera* for the males to appear before the females I am unfortunately unable to say, but in some cases they certainly do so. Thus in a recent communication Dr. T. L. Bancroft, of Burpengary, Queensland, who for some years past has made a special study of *Culicidæ*, writes as follows:—"In breeding out mosquitoes I have observed that the first imagines to appear are males; they emerge several days before the remainder, which are females."

gaster, *Mg.*, but with the eyes separate in both sexes, and the posterior orbits not produced into a prominent ridge in either sex.

Type of genus, *Pachygaster meromelæna*, L. Dufour.

The synonymy will therefore run as follows :—

NEOPACHYGASTER MEROMELÆNA, Duf.

Pachygaster meromelas, L. Dufour, Ann. Sc. Nat., Seconde Série, T. XVI, p. 266 (1841).

Sargus pachygaster, Flin., Stratiomyidæ Sueciæ, p. 13, 1 (1817), *pt.*

Pachygaster orbitalis, Wahlberg, Öfv. K. Vet.-Akad. Förhandl., Elfte Årg., 1854, p. 212 (1855).

? *Pachygaster argentifer*, Jænnicke, ♀, Berl. Ent. Z., X, p. 221 (1866).

Pachygaster meromelas, Loew, Zeitschr. f. d. Ges. Naturwiss., Bd. XXXV, p. 266 (1870), *pt.*

It is impossible to say definitely whether any other species can at present be assigned to *Neopachygaster*. *Pachygaster tarsalis*, Ztt., as yet unfortunately unrepresented in our collection, would seem to have a holoptic male, since, although he does not expressly mention the eyes, Zetterstedt, who describes both sexes, states that the species is similar to *P. atra*. *Pachygaster minutissima*, Ztt., is stated by its author (Dipt. Scand., viii, p. 2961) to have the eyes in contact in the male.

Van der Wulp ("Természetrájsi Füzetek," Bd. xxi [1898], p. 417), describes the male of his species *Pachygaster limbipennis*, from New Guinea, as having the eyes almost in contact ("mit fast zusammenstossenden Augen"); while in the case of *P. lativentris* (*loc. cit.*, p. 416), another new species from the same locality founded on the female alone, he states that the front is "very narrow, expanded into a triangle above the antennæ." It is possible that the type of *P. lativentris* is really a male, and that both of these species should be assigned to *Neopachygaster*. A single undetermined specimen in our collection, from Hobart, Tasmania, of large size and perhaps belonging to a species as yet undescribed, may well belong to *Neopachygaster*, since, while the eyes are separate, the front is of but moderate width and has the sides parallel, so that the specimen is in all probability a male.

In concluding this paper I would ask to be allowed to offer my congratulations to Dr. Sharp on the discovery of so interesting an addition to the British Fauna, and at the same time to express my appreciation of the generous manner in which he has enriched the National Collection.

British Museum (Natural History),

Cromwell Road, London, N.W.:

August 15th, 1901.

TWO UNRECORDED BRITISH HYMENOPTERA: *HEDYCHRUM*
RUTILANS, DAHLBOM, AND (?) *SALIUS PROPINQUUS*, LEP.

BY THE REV. F. D. MORICE, M.A., F.E.S.

In looking the other day through some *Hymenoptera* collected at Lyndhurst by Miss Ethel Chawner, I was pleased but not surprised to recognise a specimen (♀) of a Chrysid, which I have long thought must occur in this country. This is the true *Hedychrum rutilans*, Dahlb. (not to be confounded with the insect so identified by F. Smith and Marshall, which is a *Holopyga*). It is widely distributed throughout Europe, not uncommon in the north of France, and I have a specimen taken by Mr. E. Saunders this year in Jersey. Its appearance here is therefore quite natural.

Miss Chawner says, "I took it on a piece of rustic woodwork close to a dry and sandy ditch in this garden. The time was either July or August (I think the latter) of 1899."

Hedychrum rutilans is easily distinguished from our other *Hedychrum* (viz., *nobile*, Scop., = *lucidulum*, F.) by its very different colouring, which a good deal resembles that of the much smaller *Hedychridium minutum*, Lep. The vertex, and the whole front of the thorax, up to and inclusive of the scutellum, are concolorous with the abdomen, of a fiery tint (rather rosy-red than golden), which in some lights appears "shot" with green. In the ♂ this greenish tint is stronger, and sometimes quite overpowers the red, but there is no such striking difference between the coloration of the two sexes as occurs in *nobile*. Structurally the two species are best distinguished by the pronotum, which in *rutilans* is longer, and (as seen from above) narrowing more distinctly from base to apex. Also the hairing of the head in *rutilans* is very short and pale, while in *nobile* it is pretty long and distinctly blackish.

In my Synoptic Table (Ent. Mo. Mag., 1900, p. 130) *rutilans* should follow *nobile*, ♀, and be characterized—"vertex and scutellum as well as pro- and mesonotum reddish-fiery." The description of *nobile*, ♀, should read, "vertex and scutellum greenish-blue, pro- and mesonotum golden."

The above was not my only interesting "find" among Miss Chawner's captures. They included also two specimens (both ♀) of a *Salix*, of which at the time I could only say that it was quite unlike anything known to me as British. But having since compared them with my foreign *Salii*, I believe them to be identical with two

♀ specimens, one of which I took at Jericho, and the other at Algiers. Each of these has been identified for me as (probably) *Salius propinquus*, Lep., the former by Herr Kohl, the latter by Mr. E. Saunders.

These insects, though females, are practically entirely black, the usual red band on the abdomen being conspicuous by its absence, and only the extreme edges of the basal dorsal segments just where they fold over the corresponding ventral plates, the mandibles and mouth parts, and the legs at their articulations, showing a slight tendency to rufescence. The apical portions of the fore-wings are occupied by a dark cloud enclosing a very large and conspicuous hyaline spot; and there is also (much in the style of *Agenia variegata*, L.) another deep stain along the basal nervures forming a distinct broadish fascia. The clypeus is scarcely emarginate, punctured, and dull, except on its extreme apex, in the centre of which is a little shining triangular space. The vertex and pronotum are very closely punctured and quite dull; on the mesonotum and still more the scutellum the punctures are rather more sparse, and the surface therefore slightly shining; the mesopleuræ are closely (reticulately) rugose and dull, the propodeum shining with conspicuous and uninterrupted transverse striations. The insect is clothed with a short silvery pubescence, for the most part, however, only visible in certain lights, that on the pygidial area is darker (fuscous), and there are some longer whitish hairs about the apex of the clypeus, the vertex, the occipital and prothoracic regions (including the front coxæ), the under-side of the abdomen, and its apex. The ocelli are arranged in a nearly equilateral triangle, and the posterior pair are rather nearer to each other than to the compound eyes. This description will, I hope, be sufficient for the identification of the species by any one fortunate enough to meet with it.

The ♂ of *propinquus* is, I believe, not certainly known. It is to be hoped that Miss Chawner's future searches in her neighbourhood may clear this matter up. In the meantime I may say that I have taken at Algiers a ♂ *Salius*, which seems very likely to be the creature in question. It is black, with a striated propodeum, and wings with a double fuscous cloud (as in *propinquus*, ♀), but, as is natural, without the essentially ♀ character of the hyaline apical spot.

Whether or not this insect be the true *propinquus*, Lep., and whether, if so, it be really a good species, or only a melanic form of some usually red-banded *Salius*, it is at any rate remarkable that it should occur in this country, and, having occurred now, that it should

not have been detected before. It is so noticeable an insect, and so unlike any other British species, that it can scarcely have been overlooked if met with.

Miss Chawuer's two specimens differ a good deal in size—8 mill. and 12 mill. long, respectively! but otherwise they are quite similar. One was taken in her garden in August, 1893, the other (the larger specimen) on Lyndhurst Racecourse in August, 1899. Of the former she writes to me, "It was running on a sandy flower-bed in this garden. The sun was very hot at the time, and it was flirting its wings, so that the white spots on them quite glistened. I think this is what attracted my attention to it."

Brunswick, Woking:
September, 1901.

ON AN ICHNEUMONID GENUS, AND TWO SPECIES NEW TO BRITAIN.

BY CLAUDE MORLEY, F.E.S., &c.

DINOTOMUS, Först.

Först., Ver. pr. Rheinl., 1868, p. 188; *Psilomastix*, Tischbein, Stett. Ent. Zeit., 1868, p. 255; *Trogus*, Gr. I. E., ii, 371 (pars.).

Head much narrower than thorax, constricted behind eyes; labrum strongly exerted; clypeus apically truncate or emarginate. Antennæ in both sexes filiform, and not perceptibly centrally dilated. Thorax stout. Scutellum more or less pyramidal or conical, apically immarginate. Abdomen aciculate or striate, with more than three visible dorsal segments, very deeply incised and laterally bordered; lunulæ on segments 2—4 wanting, or very indistinct. Legs slender, hind femora reaching at most to apex of 4th dorsal segment. Wings dark; arcoleat subpentagonal or subrhomboidal.

In the British list this genus is the next before *Trogus*, Panz.

DINOTOMUS LAPIDATOR, Fab.

Ichneumon lapidator, Fab., M. I., i, 266, ♂; Piez., 67 (nec Fab., E. S., iii, 160). *I. coeruleator*, Fab. Piez., 68. *I. caeruleator*, Panz. Schæf. Ic., exxxv, f. 3 (?). *Trochus coeruleator*, Trentep. Isis, 1826, p. 297. *Banchus venator*, Illig. Rossi F. E., n. 767. *Trogus caeruleator*, Panz., F. G., pt. c, t. 13: Revis., 80. *T. lapidator*, Gr. I. E., ii 391; Wesm. Bul. Ac. Brux., 1854, p. 61, ♂. *Psilomastix lapidator*, Tischb., Ent. Zeit., 1868, ♂ ♀. *Dinotomus lapidator*, Berth., Ann. Soc. Fr., 1896, p. 296.

Head black, transverse; eyes prominent; face entirely black, somewhat prominent longitudinally in the centre, strongly and evenly punctate; clypeus black, apically emarginate, slightly raised laterally, strongly punctate, with scanty white hairs; mandibles black, rufescent apically, punctate and margined, very obsoletely bifid and much depressed apically; labrum, ligula, maxillary and labial palpi fulvous; 2nd joint of maxillary palpi strongly lobed, apical long and cylindrical;

labial palpi with joints somewhat moniliform. *Antennæ* rather short, entirely black above, funiculus ferrugineous below towards base; darker with joints more cylindrical in ♀. *Thorax* black; mesonotum finely, evenly, and distinctly punctate, with an anterior central depression in ♀; mesopleuræ finely scabrous, divided from the more shining mesosterna by an ill-defined sulcatula, interpectoral line smooth and narrow; metathorax strongly punctate, with black pilosity; areola very short, triangular, the posterior area only well defined. *Scutellum* black, strongly punctate, with black pilosity, tumidulous, apically acuminate. *Abdomen* violaceous- or æruleous-black, longitudinally rugose, the sculpture much coarser in ♀, incisures deeply impressed, dorsum of central segments depressed; petiole bicarinate, much explanate apically, central area narrow, aciculate in ♂, rugose in ♀; gastrocaeli normal, deeply impressed; two apical segments small and inconspicuous; ♂ with ventral fold on segments 2—5, ♀ on 2—3; terebra scarcely visible and barely exerted beyond apex of last ventral segment. *Legs* fulvous, coxæ and trochanters, except apex of hind pair, black; hind tarsi more or less nigrescent, onychium red. *Wings* somewhat infusate; costa and tegulæ piceous, radix ferrugineous; basal nervures piceous, the apical and stigma ferrugineous; areolet distinctly subpetiolate, its sides converging.

Length, ♀, 15 mm.; ♂, 13 mm.

The ♀ var. *fuscipennis*, Grav. I. E. ii 389, has the wings very dark with a violet reflection.

This species is a well-known parasite of *Papilio Machaon*; it is solitary in its parasitism, and the imago emerges from the pupa through a large irregularly-circular hole, often in the right wing-case. All the British examples have been bred from the above host.

There is a ♀ in Rev. T. A. Marshall's collection (Mus. Mason) labelled "British, 1893," and others in those of Messrs. A. Beaumont and W. W. Esam. The latter received twelve larvæ, of which only three pupated, two of these producing the sexes of *lapidator* (above described). There is little doubt these also are British, since they were obtained from a collector in the Cambridge Fens, in June, through Edmonds, who had no *Machaon* from the continent till the autumn.

On the continent it is very rare in Sweden, where Holmgren never met with it, and uncommon in central and southern Europe, extending to Algeria. It has been bred from *Argynnis Pandora* by Mocsary. Gravenhorst says, "Habitat in floribus, in dumetis, in regionibus sylvaticis."

DINOTOMUS PICTUS, Kriechb.

Psilomastix pyramidalis, Tischb., Ent. Zeit., 1868, ♀ (sic ♂). *P. lapidator*, var. 19, lib. cit., 1874, ♂ ♀. *P. pictus*, Kriechb., Nachr., 1882. *Dinotomus pictus*, Berth., Ann. Soc. Fr., 1896, p. 297.

Very like the preceding, from which it may at once be known by its truncate clypeus and flavous markings, as well as by the following points:—*Head* concave behind the eyes; facial, genal, and vertical orbits broadly fulvous; clypeus apically

truncate; mandibles rufescent throughout, distinctly bidentate; joints of maxillary palpi subcylindrical. *Antennæ* of ♀ with joints 11—15 stramineous. *Thorax* black; pronotum, lines before and beneath radix, and two indistinct punctures before scutellum, flavous; areola represented by a tubercle, posterior area with strong lateral costæ. *Scutellum* finely punctate, black, its posterior face stramineous; acuminately arcuate. *Abdomen* black, with no metallic reflection; the petiole not unusually explanate apically, its central area aciculate in both sexes; gastrocaeli broad and deeply impressed; terebra slightly exerted beyond apex of abdomen. *Legs* bright fulvous, coxæ and trochanters almost entirely black; anterior femora and tibiæ infusate above; all the tarsi entirely fulvous. *Wings* subhyaline, with a slightly darker apical fascia; all the nervures piceous; arcolet subdeltoid, not petiolate. *Length*, ♀, 16 mm.

The insect above described differs from the type form in the immaculate scape, mesopleuræ, coxæ, and trochanters, and in having the hind femora, tibiæ, and tarsi unicolorous.

A single example was bred from a pupa of *Apatura Iris* on July 12th, 1901, by Mr. J. F. Musham; the larva was taken in the New Forest. The parasite emerged through "a circular hole 1/8" dia. in the upper left half of the thorax, not quite in the centre; the pupa was only slightly discoloured, much less so than when the host emerges. The larva before pupation was very small and sluggish, and its right process was only half as long as the left; oviposition of the parasite took place in the autumn, before hibernation, when the larva was in its earliest stages."

It is very rare on the continent; M. l'Abbé Berthoumieu records it only from Hungary; Tischbein bred it from the above host.

Ipswich: *September*, 1901.

A NEW GENUS OF HAWAIIAN GEOMETRIDÆ.

BY R. C. L. PERKINS, B.A.

In this Magazine (*ante* p. 215) I described a new genus of *Geometridæ* from the Hawaiian Islands, and suggested that *Scotorythra megalophylla*, Meyr., of which only the ♀ is known, might be congeneric with this. The genus now characterized is much more likely to include the above-named species, and my former suggestion is no doubt erroneous. The following characters will readily separate the new genus from *Scotorythra* and its allies.

ACRODREPANIS, *gen. nov.*

Antennæ of ♂ formed as in *Scotorythra*, but with the peetinations unusually short, only three or four times as long as the widest part of the shaft. Whole body beneath densely hairy. Termen of fore-wings excised below the apex so as to be distinctly falcate. Hind-wings conspicuously hairy from the dorsal margin to the

middle. All the leg joints to and including the basal joint of tarsi hairy; posterior tibiae very short, hardly longer than the tarsi, and without a hair-pencil. Abdomen densely hairy at the sides, more robust than in the allied genera.

ACRODREPANIS NESIOTES, *sp. nov.*

♂. Expanse, 56 mm. Head bright orange, antennae ochreous-orange, shaft above dark before the pectinations, the latter with dark lines. Thorax ochreous-yellow in front, ochreous-brown posteriorly, with sparse whitish irroration. Legs orange, sparsely spotted with black. Fore-wings rather broadly triangular, the costa gently sinuate to near the apex, which is strongly prominent and falcate; termen concave below the apex, then bowed, oblique, not waved; colour fuscous suffused with orange, and much irrorated with whitish or ashy-white on the basal two-thirds, and especially on the median band; first and second lines very distinct, dark fuscous overlying orange, the first nearly straight, the second gently sinuate outwardly on its upper, inwardly on its lower half, enclosing an obviously paler median band, three times as broad at the costa as on the dorsal margin; cilia ferruginous a little mixed with white and black, mostly black towards tornus. Hind-wings yellow-ochreous, infusate towards termen, with an obscure median line of orange suffusion. Abdomen pale ochreous, fuscous at the base.

Hab.: Mountains of Oahu.

The falcate wings and general appearance associate this species with *Scotorythra megalophylla*, Meyr., but the unwaved termen renders it unlikely that the two are specifically identical.

Honolulu, H. I.:

August 20th, 1901.

EPHEMERIDÆ COLLECTED BY HERR E. STRAND IN SOUTH AND ARCTIC NORWAY.

BY THE REV. A. E. EATON, M.A., F.E.S.

Herr Strand's collection was forwarded to me for the naming of species last November. It comprises upwards of 700 alcoholic specimens, in seven tubes or small phials. The species of *Ephemeridæ* represent ten genera, one of which is new: about half of them have already been published; of the remainder, some are of uncertain species, or are hardly in condition for description, but two are here named. The localities and dates of captures recorded are:—

Gjölsjöen, Öedemark, June 5th, 1899; Skien, 4th, and Ulefos, 5th June; Laerdalsören, September 4th, 1900; and Aal, September, 1900, in South Norway.

Hatfjelddalen, 1899; Lödingen, 1st, and Hammerö, 8th July; and Tysfjorden, August, 1900, in Arctic Norway.

Ephemera vulgata, Lin.—Gjölsjöen, 34 ex.

Leptophlebia marginata, Lin. (Steph.)—Ulefos, 3 ex.; Gjölsjåen, 1 ex.; Hammeró, 1, and Lodingen, 3 ex.

Leptophlebia Meyeri, Etn. (*vespertina*, L. ?)—Skien, 52 ex.; Gjölsjåen, 47 ex.; Aal (? 3 ex.), a ♀ subim., 1 ♀ im. and 1 ♂ im. in bad preservation.

LEPTOPHLEBIA STRANDII, *sp. nov.* (fig. 1 and *a*).

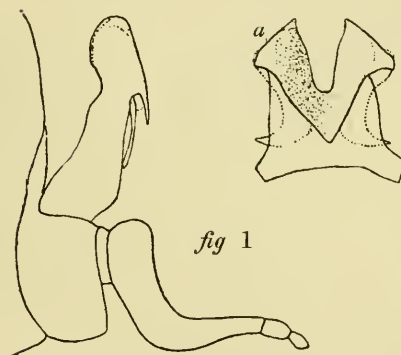
Subimago (in alcohol).—Wings uniformly grey, thus differing from *L. Meyeri*, in which the hind-wings are impure whitish.

Imago (in alcohol).—Body similar in colouring to *L. Meyeri*; the veinlets of the pterostigmatic space of the fore-wings numerous and curved, apparently simple as a rule. Distinguishable by the remarkable flexure of the basal joint in the forceps-limbs, and by the shape of the penis (see fig. annexed), the lobes of which diverge slightly and are obliquely truncate at their tips, with the ventral apical angle acute. In the absence of living or dried specimens, it seems inexpedient to enter further into particulars of colouration.

Length of wing, ♂ 7·5, ♀ 7·5—9; setæ, ♂ im. ♀, subim. 7·5, ♀ 7·5—9 mm.

Hab.: Aal (*Strand*), 140 ex.

Figs. of details × 62 diams. in the original drawings:—1, partial lateral profile



of the last abdominal segment of ♂ im., with penis and forelegs-limb *in situ*; *a*, penis detached, viewed under slight pressure from above (not, as usually seen, from behind or below); the spurs indicated (all but their points) by dotted lines showing through the sub-transparent substance of the lobes.

Baëtis vernus, Curtis—Hatfjelddalen, 289 ex.

Baëtis rhodani, Pict.—Laerdalsören, 3 ex.; Aal, 2 ex.

Specimens of undetermined species of *Baëtis* in the collection:—Gjölsjåen, 2 ♀ im.; Aal, 1 ♀ subim.; Hammeró, 1 ♂ subim., 1 ♀ im. and 1 subim., also 3 ♂ subim., 1 ♀ im. and 1 subim.; Tysfjorden, 2 ♂ subim., 1 ♀ im., 4 subim., also 1 ♀ subim.

Chironetes sp.—.—Hatfjelddalen, 1 ♂ subim.

Ametetus inopinatus, Etn.—Hatfjelddalen, 2 ♂ subim., 1 ♀ im.

Siphylurus lacustris, Etn. (?).—1 ♂ im.

Siphylurus Linnaeanus, Etn.—Aal,—13 ex.; ? Hatfjelddalen, 1 ♀ subim. This species had previously no known locality.

Siphylurus sp.—.—Hatfjelddalen, 1 ♂ im. (immature, the submarginal slough having been denuded by friction in transit), 3 subim., 1 ♀ im., 1 subim. An undescribed species.

METRETOPUS,* *gen. nov.*

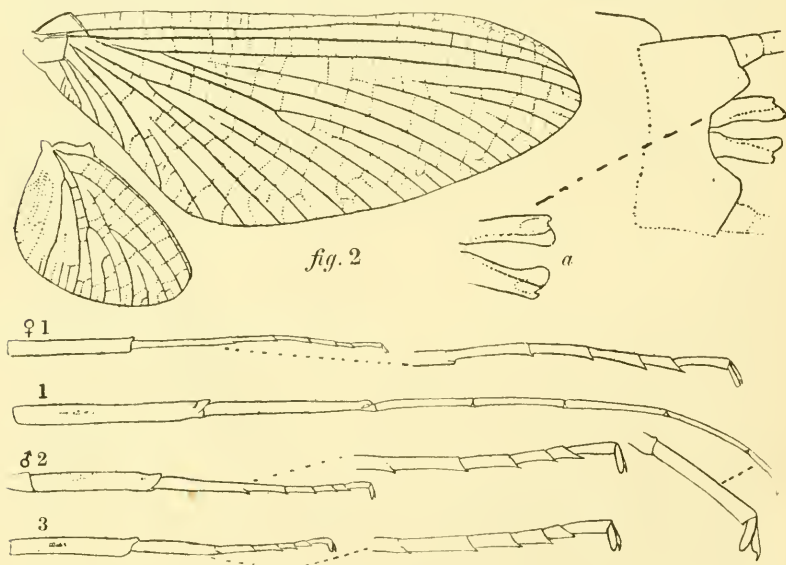
Distinguished from *Ametropus* (Etn. MS.; Albarda, 1878) by the median caudal seta being atrophied to a pauci-articulate rudiment, and by the tibiae being less short in comparison with the tarsi. Fore tarsus of ♂ about thrice the length

**Etymology*—*Metretos* and *pous*, measurable foot (with regard to *Ametropus*).

of the tibia (as 11 to 4) and twice the length of the femur (as 11 to 5); the tarsal joints in diminishing order rank 1, 2, 3, 4 subequal to each other, 5, the 5th joint being about two-thirds the length of the 1st joint. Fore leg of ♀ subequal in length to the body; tarsus $1\frac{1}{2}$ the length of the tibia, which is hardly shorter than the femur; the tarsal joints in order of diminution of length rank 1, 2 equal to 5, 3, 4. Ungues in every tarsus each unlike the other, narrow. In the anal-axillar interspace of the fore-wing the intercalate nervure next to the anal nervure is the longer. Costal angle of hind-wing acute; neuration of the axillar region, in the specimen figured, partly indistinct through maceration in fluid. Forceps—basis of ♂ roundly excised between the insertions of the limbs; the basal joint proportionally shorter than in *Ametropus*, and immovably anchylosed to the 2nd, which is the longest joint. Ventral lobe of the 9th ♀ segment very short, transverse and obtuse. Outer caudal setæ of ♂ imago about $1\frac{1}{2}$ the length of the body; in ♀ imago as long as the body; in the subimago of either sex not quite so long as the body. Type, *M. norvegicus*, sp. nov.

METRETOPUS NORVEGICUS, sp. nov. (fig. 2).

Imago (in alcohol).—♂. Body somewhat discoloured; thorax pitch-black above. Abdomen in segment 1 and segments 7–10 bistre-brown; the intervening



segments translucent, having the apical margin dorsally bordered narrowly with umber-brown, with a median longitudinal line and an oblique linear lanceolate streak on each side produced forwards from it of the same colour, so as to constitute a tridentate marking, enclosing on each side of the dorsum a large almost right-angled triangular translucent space, rounded at the posterior angle, the shortest side of which is at the base of the segment. From the right-angle of this triangle a fine tapering blackish streak proceeds towards the middle of its hypotenuse. Setæ uniformly dark grey.

The ♀ has some degree of resemblance in its general colouring to *Heptagenia sulphurea*, but exhibits markings on the abdomen similar in style to the translucent spaces above described of the male.

Length of body, 10 ; wing, ♂ 9, ♀ 10 ; setæ, ♂ im. 12—13, subim. 7·5, ♀ im. 10, subim. 8 mm.

Hab. : Aal, 85 ex.

Figs. of details, all enlarged :—2, wings of ♂ ; legs (1, fore leg ; 2, middle leg ; 3, hind leg) with detached portions on a more enlarged scale ; *a*, ♂ genitalia (parts omitted) from beneath, with penis (on a rather larger scale) detached.

Rhithrogena sp.— (undetermined)—Aal, 1 ♀ im.

Heptagenia sulphurea, Müll.—Gjölshäen, 2 ex. ; Aal, 2 ex.

Ecdyurus sp.— (undetermined)—Aal, 1 ♀ subim.

The absence of *Ephemerella* and *Centropilum* from this collection is noteworthy ; species of both occur in Norway.

Woodlands, Seaton, Devon :

1901.

MELANDRYA BARBATA, FABR., IN THE NEW FOREST.

BY G. C. CHAMPION, F.Z.S.

Mr. E. C. Bedwell has recently sent me for examination a specimen of this insect, captured by himself at Brockenhurst in June last, on an oak trunk, in the evening, when almost dark. This is the *M. canaliculata*, Fabr., of our older British Catalogues, having been introduced by Curtis somewhat doubtfully under that name, on the authority of an example captured on the wing by Mr. Bentley at Brockenhurst in June, 1823. The species is so rarely found in the New Forest that few British entomologists have had an opportunity of seeing it. Three other specimens found during recent years have, however, at various times come under my notice, all found by Mr. Gulliver, and these are now contained in the collections of Messrs. P. B. Mason or F. Bates ; and I possess a very old example of it, supposed to be of British origin. The differences between the two species, *M. barbata*, Fabr. (= *flavicornis*, Dufts., and *rufipes*, Guér.), and *M. dubia*, Schall. (= *canaliculata*, Fabr.), are clearly and concisely given by Dr. Seidlitz (Naturg. Ins. Deutschl., Col., v. 2, pp. 628, 630), as follows :—

M. BARBATA.

Nigra, antennis pedibusque plerumque flavis, prothorace antrorsum rotundato-angustato, leviter canaliculato, basi utrinque impresso, elytris postice haud dilatatis, antice haud depressis, fortiter canaliculatis, interstitiis 5, latis, convexis, æqualibus. Long., 9—10 mm.

M. DUBIA (CANALICULATA).

Nigra, prothorace lateribus subrectis, canaliculato, basi utrinque

fortius oblique impresso, elytris postice dilatatis, antice depressis, postice canaliculatis, interstitiis 10, alternis elevatis. Long., 10—15 mm.

From these characters it will be seen that *M. barbata* is a much smaller insect than *M. dubia*, and has parallel-sided elytra, with the deep sulci separated by broad convex interspaces. The legs and antennæ vary in colour, and are sometimes entirely rufo-testaceous, as in Mr. Bedwell's specimen. *M. dubia (canaliculata)*, which must be erased from the British list, has the elytra widened posteriorly (as in *M. caraboides*), with the interspaces narrow, and the alternate ones only raised.

Both species are widely distributed on the continent, but *M. dubia* extends much further north than *M. barbata*. Curtis gives an excellent figure of the latter, under the name *M. canaliculata*, at the same time noting that it differs from Panzer's drawing (which is very bad) of that insect; and good figures of the species are also to be found in the works of Sturm, Guérin-Ménéville (*M. rufipes*), and Jaquelin-Duval (*M. flavicornis*). *M. dubia (canaliculata)* is very like *M. caraboides*, Linn. (= *serrata*, Fabr.), and of the same size; but it is black, the thorax is less rounded at the sides and canaliculate down the middle, and the elytra have the narrow alternate interspaces raised. The North-American *M. striata*, Say, is a nearly allied form.

Mr. Bedwell's specimen is somewhat broken, and he thinks that the insect had been attacked by *Calosoma inquisitor*, two examples of which he found quite close to it on the same tree.

Horsell, Woking:

August 31st, 1901.

Attelabus curculionoides, Linn., attacking chestnut and hornbeam.—This insect appears to have been very abundant this year, and has been found rolling up the leaves of the sweet chestnut at Guestling, Battle, and Haslemere; in the latter case a large number of leaves were thus rolled. It has also been noticed utilizing the leaves of the hornbeam, two rolls having been found by Mr. E. Connold, of St. Leonard's, in the Battle Woods.—E. N. BLOOMFIELD, Guestling: September, 1901.

[I cannot find any record of *Attelabus* attacking hornbeam; Bedel, however (Faune Col. Bassin Seine, Rhynch., p. 222), states, on the authority of Nördlinger, that it is found upon the chestnut.—G. C. C.].

Vanessa Antiopa in Middlesex.—Mr. Frank Podmore informs me that on Sunday, the 25th inst., a large specimen of this species was seen by him at Stanmore where he was playing golf. His brother, who is an active collector of *Lepidoptera*, also saw it, so there is little doubt as to the identity of the species.—H. Goss, The Avenue, Surbiton Hill: August 28th, 1901.

Vanessa Antiopa at Eltham.—I this morning captured in my garden a very fair specimen of *Vanessa Antiopa* flying round a plum tree.—A. H. JONES, Shrublands, Eltham, Kent: September 1st, 1901.

Vanessa Antiopa near Maidstone.—On Sunday last (25th) I saw a splendid specimen of *Vanessa Antiopa* here. I was sitting in the verandah with my wife, niece and brother-in-law, when it flew in and settled for a moment on the trellis at the back of the verandah, about 6 or 7 feet from us. We all saw the white border to the wings, and on showing my wife the picture of the insect in Humphreys and Westwood's work, she said at once that the border was much whiter than in the coloured figure. Before a net could be got it was off.—ALFRED O. WALKER, Ulcombe Place, near Maidstone: August 27th, 1901.

Vanessa Io, L., in Ireland.—I captured one at Enniscrone, Co. Sligo, the first that I have taken in Ireland; and curiously enough a few days after my return Mrs. Johnson caught one at O'Meath, Co. Louth. She had no net with her, but knocked it down with a tennis racket, and brought it home in triumph. This butterfly has made quite an excursion into the north of Ireland, Donegal, Derry and Antrim have all produced specimens.—W. F. JOHNSON, Acton Glebe, Poyntzpass, Co. Armagh: September, 1901.

Larvæ of Sphinx convolvuli in Yorkshire.—On August 30th a full grown caterpillar of the Convolvulus Hawk Moth (*S. convolvuli*) was found crawling across a road close to the Monkton Main Colliery, at Royston, near Barnsley. Through the kindness of several friends it came into my hands on September 1st, when I took the following description of it:—Colour uniform bright green, no lighter on under parts. Face green, with four fine black stripes, the two centre ones forming a V-shaped mark, with the apex at the mouth. Oblique stripes seven in number, slightly more yellow than ground colour, but only just visible. Spiracles enclosed in black blotch, another black mark bordering the top half of the oblique stripe, and continued past it well on to back, there turning down towards tail and running nearly to the angle of the next similar mark, this black mark was uniformly about one-eighth of an inch broad. Horn long, nearly smooth, much curved, and sharply pointed; in colour bright orange-red, tipped with black. Legs black. Claspers green. Length, about $3\frac{1}{2}$ inches, and rather stout in proportion.

Thinking it possible that where there was one larva there would be others, I took the opportunity of running over to Monkton on September 2nd, on the chance of obtaining another or two; in this I was not disappointed. After a little trouble I succeeded in finding the place where the first caterpillar had evidently been obtained; the bottom of a rail along the side of a field for some 200 yards was thickly overgrown with the small field convolvulus (*C. arvensis*), this was so much eaten that I believe about a dozen of these caterpillars must have fed up there. After a careful search of about two hours' duration, I obtained four of them, all about full grown.

A most interesting feature of the "find" was the great variety of colour exhibited. Of the four I found three were brown, one green, the latter differed from the one first brought to me, and already described, in the following respects:—the spiracles were narrowly outlined in red, as well as enclosed in dark blotch. The

general ground colour was lighter. The dark marks were merely borders to the yellow oblique stripes (which were much more pronounced), and were not prolonged past them, or carried down the back at all.

The brown variety was of a dirty yellowish-white ground colour, clouded with deep brown, the markings being thickest on the back and almost absent below the spiracles nearly to the claspers, which were again brown. The spiracles were enclosed in a darker blotch, and the brown cloudings on the sides were so clustered as to suggest to the eye the usual oblique stripes of the hawk-moth caterpillars, but only indistinctly. The horn in this brown variety was all black, as also were the legs. The face was yellowish-brown, with the same black stripes as the green variety. The largest of the five caterpillars was about four and a half inches in length, almost as large as that of *A. Atropos*.

All these larvæ have now "gone down" into the soil to pupate, and I am anxiously awaiting the emergence of the perfect insects. From what I can hear this is the first record of the larvæ of *S. convolvuli* having been taken in Yorkshire. I might say that the caterpillars have been shown to Mr. W. E. Brady, of Barnsley, a well known entomologist, who expresses his opinion that the larvæ certainly are those of *S. convolvuli*; Mr. Harrison, F.E.S., of Barnsley, is also of the same opinion.—A. WHITAKER, Saville House, Worsbrough Bridge, Barnsley: *Sept.*, 1901.

Sphinx convolvuli in Surrey.—Last Sunday afternoon my gardener brought me a fine ♂ specimen of *Sphinx convolvuli* which he had taken in the morning (flying in the sunshine) between Chessington and Bones Gate, about two and a half miles from here. I have heard of the capture of other specimens in the neighbourhood.—H. Goss, The Avenue, Surbiton Hill: *August 28th*, 1901.

Plusia moneta at Eltham.—I found on May 3rd last seven quite small larvæ of *Plusia moneta* on a plant of *Delphinium* in my garden. This suggested a visit to my neighbours' gardens, with the result that I collected quite a number of the larvæ. I bred about fifty of the moth during the last half of June, but no ichneumons. I also found a few larvæ at Sidcup, and received others from Thames Ditton and Red Hill.—A. H. JONES, Shrublands, Eltham, Kent: *September 1st*, 1901.

Acherontia Atropos, L., in Dumbartonshire.—I have a bred specimen of this species brought to me in good condition from this neighbourhood to-day. It is the only record for the district for a number of years.—J. R. MALLOCH, Bonhill, Dumbartonshire: *September 9th*, 1901.

Catocala nupta in north-west London.—During August ten specimens of this species were taken at sugar placed on the trunks of pear trees in the garden here after dark, much to the delight of the youthful captors of these unexpected visitors. They are in fine condition, showing that they have not long been out, nor flown far. One example was taken on the 12th instant.—J. W. DOUGLAS, Morningside, Craven Park, Harlesden, N.W.: *September 14th*, 1901.

Rapid development of Smerinthus ocellatus.—I send you the following facts, which I think may interest your readers. On June 9th of this year I had a large brood of *Smerinthus ocellatus* larvæ hatched. The ova were laid by a moth with

undeveloped wings; she was twice *in coitu*, and with different males. On July 23rd nine or ten of these larvæ were full fed, and went to earth, the rest taking a few days longer, and on the 2nd of this month one of these appeared as an imago: thus, in less than three months, this insect was perfected. I gave the moth alive to Dr. Butler, of the Natural History Department, South Kensington, with particulars of dates.—ARTHUR E. STEARNS, New Mills Cottage, Henley-on-Thames: *September 5th*, 1901.

Pompilus approximatus, Sm., in *North Wales*.—During a short stay at Barmouth at the beginning of August 1 determined to run over to Criccieth in search of *P. approximatus*, where Mr. Nevinson informed me he had taken it. The day (August 3rd) was not an ideal one for *Pompilidae*, being dull and windy. However, in the neighbourhood of the Black Rocks, about two miles down the coast, on very stony ground covered with plants of *Euphorbia*, some 200 yards from the sea, we found the species dodging about the stones. After three hours' hard work my son and self had captured 28 specimens, 5 males and 23 females. They were extremely active, and very difficult to take when running in and out the stones, and many were missed. Two days later, on the Dyffryn Sandhills (an entirely different class of ground), I captured two more, one of each sex.

Mr. Saunders, in his *Synopsis of British Fossorialia*, quoting from Smith, says: "Closely resembles *P. niger*, but is a larger insect;" but, judging from the 30 specimens before me, the females are about the same size as *niger*, and the males decidedly smaller.—RALPH C. BRADLEY, Moseley, Birmingham: *September*, 1901.

Andrena helvola, Linn., in *Scotland*.—As there seems to be a doubt as to the authenticity of the Scotch record of *Andrena helvola*, Linn., it may probably be of interest to record the occurrence of this species at Bonhill in May last, where I took seven specimens (4 ♂ and 3 ♀).—J. R. MALLOCH, 17, Dillichip Terrace, Bonhill, Dumbartonshire: *August 20th*, 1901.

Sirex gigas, L., in *Ireland*.—I captured a fine female example of the above large saw-fly on the 20th inst., at rest on the trunk of a felled fir tree in Clandeboy demense, near Bangor, in the County of Down. I was greatly surprised to meet with this insect, which I believe is of rare occurrence in Ireland.—L. H. BONAPARTE WYSE, Bangor, Co. Down: *August 28th*, 1901.

Attraction of the flowers of Ampelopsis tricuspidata (Veitchii) for the Hive Bee.—My house, both back and front, is covered with *Ampelopsis* "*Veitchii*," which at the present moment is in full bloom. The inconspicuous, greenish, grape-like flowers are a great attraction for the Hive Bee (*Apis mellifica*), which visits them in myriads all day long. What the nature of the nectar, or its quality, may be I know not, but of the partiality of the bees for it there can be no doubt. *Syrphidae* and other *Diptera* also visit the creeper; but I am not sure that these habitually visit the flowers, they seem rather to pose on the smooth shining leaves.—R. McLACHLAN, Lewisham, London: *August 23rd*, 1901.

Anthrax paniscus, Rossi, at *Criccieth*.—On the *Euphorbia* plants referred to in a previous note *Anthrax paniscus* occurred much to my surprise for several

reasons, viz., the weather dull, the locality so stony (I had previously only taken *Anthrax* in sandy places), and I had no idea it occurred so far north. Twenty-five specimens were taken, six males, the rest females, a large number considering the time we were there, and doubtless had the day been favourable it would have been common. Two days after I swept a single specimen from rushes at Dyffryn. I do not know if *Anthrax* has been previously recorded from North Wales. For many years *Anthrax* seemed to be declining in England, but the last two seasons they have certainly made headway again, as they have been recorded in some numbers from Devon, Cornwall, Bournemouth, New Forest, and the East Coast. Mr. C. J. Wainwright, Mr. F. C. Adams and myself have probably taken 100 specimens.—RALPH C. BRADLEY, Moseley, Birmingham : September, 1901.

Insects found around Jerusalem (Supplementary).—The following Hemiptera occur at Jerusalem:—*Reduvius pallipes*, June—flies to the evening lamp; on seizure stridulates and pricks with its rostrum. *Pentatoma virens*, June and July—possibly a variety has the head, thorax and elytra margined in front with lemon-yellow. *Lygæus militaris*—frequents the vine leaves; it extends to Southern Europe, Egypt and India. *Pyrrhocoris apterus*, July and August—for a hundred yards in 1896 a pathway leading down to the Gorge of the Kedron was reddened as with blood by these bugs; they clustered together and hung on the thistles, evidently coupling. *Cimex lectularius*, no doubt. *Cydnus nigritus* and *Sciocoris umbrinus*, June.

In regard to *Lepidoptera*, *Idmais Fausta*, like our clouded yellow in England, seems to have been plentiful at Jerusalem in 1900. *Collantia Ertzeni*, Led., a congener of *pubica*, appears at Beirut and Jerusalem in October; and like that moth, the male has a bladder on the thorax, in regard to which Dr. Chapman remarks, "It is curious these should be well developed in an Arctian and Lithosian genus; one must suppose they exist potentially throughout the Arctiadae." In appearance it resembles *Arctia Caja* and *fasciata*, but Mr. Kirby, who has compared Lederer's figure of the larva with Hofman's figures, says it is like that of *Callimorpha dominula*. Since Dr. Chapman notices the bladder present in both sexes of *Setina irrorella* and *aurita*, this may indicate an ancestral form, with scions *fasciata*, *Caja*, *pubica*, *Ertzeni*, and *dominula*. *Diloba cæruleocephala* appears at Jerusalem in November; I remember seeing it at Cowes in the Isle of Wight during September. *Amphipyra Styx* and *Pseudophia tirrhæa* occur at Jerusalem.

As regards *Diptera* four gnats disturb the siesta at Jerusalem, where they breed in the cisterns—the English *Culex pipiens* apparently, a *Culex* spotted alike but black, one wholly pale brown, and the minute sand fly that descends like a flock of snow.

I may add that the Rev. O. P. Cambridge has kindly identified a few Jerusalem spiders:—a domestic *Pholeus*, only too like *phalangioides*, so very handy on the ceiling in Dorset and Devon; the white *Argiope sericea*, with an indented abdomen, that sits on a geometrical web spun in *Genista*; the English *Thomisus onustus*, grey in colour, that hides on the grey *Salvias*; and the fawn-coloured *Sparassus angelosius*, frequenting houses, and probably introduced with firewood.

A woodlouse-like creature, *Hemilepistus*, that carries bits of leaf in its mouth to holes in the chalk, is common on Olivet.—A. H. SWINTON, Vineyard, Totnes, Devonshire : July, 1901.

JULY IN THE CÉVENNES (*LEPIDOPTERA*).

BY A. HUGH JONES, F.E.S.

In June, 1899 (*vide* Ent. Mo. Mag. [2], vol. x, p. 186), I spent a short time in the Cévennes. This year I paid a second visit, accompanied by my friend Mr. H. Rowland-Brown. Arriving at Sainte Cécile d'Andorge on July 16th, on the following day we drove a distance of about 20 miles through very picturesque mountainous country, though not very suggestive of good collecting ground, to Florac. Here we remained several days, visiting the Causse Méjean, an elevated tableland of some 30 or 40 square miles, but our chief hunting ground was near the chestnut groves on the lower slopes of the mountain l'Empezou where we found some patches of saintfoin and lavender-covered hillsides. By way of Sainte Enimie we then started down the Gorges du Tarn to Le Rozier, a distance of about 26 miles, breaking the journey at Château de la Caze (now turned into a hotel); not far from the Château, on an uncultivated piece of ground about half an acre in extent, we found an abundance of butterfly life, and out of the 64 species observed in the Cévennes 46 occurred at this one locality. Some of the species were in the greatest abundance, for instance, *P. Podalirius*, *C. Edusa* and *Hyale*; *S. Briseis* and *P. Dorilis*, *P. Daplidice*, *A. Latonia*, and *L. Dolus* were also represented, and a *Sphinx convolvuli* just emerged turned up in an unexpected manner. At this point of the stream, a somewhat narrow defile, the inundations of last year had left a sad impression. Many of the big trees which skirted the river had been torn up by their roots and lay in endless confusion, and others were bent almost to the ground: nor can one be surprised at this when one hears that in a few hours the river rose 30 feet!

On July 25th we started on our further journey down the river and its rapids with much anxiety as to the fate of our specimens on the setting boards, but thanks to the good steering of our boatmen we arrived at Le Rozier without a single pin becoming loosened. The road through the valley to the stalactite caves of Dargilan and Meyrueis seemed very promising for collecting, but the weather was unsettled. From Millau, the furthest point south reached by us we took the train to Mende, north of the Cévennes, which place we reached on July 27th. Bad weather now set in, and during our stay at Mende we had but one fine day, July 29th, amply repaying us, however, for our sojourn there. Among the lavender-covered hills between Mende and the next station on the railway (Balsièges) we

found good collecting ground. Butterflies were in the greatest abundance, more in numbers than in species; *L. Dolus*, however, occurred for the only time plentifully, in a dried up water-course among lavender. The contour of the hills near Mende, perhaps more so than other parts of the Cévennes, reminded one somewhat of Scotland, but how different in colour! Instead of the purple heather they were covered largely with a luxuriant growth of lavender in full bloom, the effect of which was very striking.

A drive of 60 miles by diligence on July 31st in the soaking wet brought us to Le Puy. The country round Le Puy appeared for many miles under a high state of cultivation. Southward we could see against the horizon the mountains of Mezenc, but the distance was too great and the chance of success too doubtful to induce us to undertake an expedition.

From an entomological point of view the Cévennes compare unfavourably with Digne in the Basses Alpes, almost in the same latitude, the number of species being certainly more limited, but it is an excursion full of interest. The little villages and old ruined castles, perched high up on the mountain sides, the Gorges du Tarn with its rapids, and the Grotte de Dargilan present interesting subjects, probably more so than many other parts of France, and although the hotels in the outlying districts are primitive, they are nearly always clean. I may mention that the elevations of the various places visited are as under:—

Florac.....	1950	feet	above	sea	level.
Causse Méjean.....(about)	3000	„	„		
Ste. Enimie	1560	„	„		
Château de la Caze.....(about)	1460	„	„		
Le Rozier	1267	„	„		
Mende	2402	„	„		
Balsièges	2259	„	„		

Species observed:—

Papilio Podalirius, rather a common butterfly at Florac; abundant at Château de la Caze. *P. Machaon*, scarce, a few seen at Florac, and one at Mende.

Parnassius Apollo, fairly common and generally distributed throughout the Cévennes; a smaller form than the one occurring at Digne.

Aporia crataegi, fairly common at Florac, also on the Causse Méjean, but worn.

Pieris brassicæ and *napi*, fairly common. *P. Daphidice*, not uncommon throughout.

Leucophasia sinapis, fairly distributed but not very common.

Colias Hyale and *Edusa*, common, the former especially abundant in places.

Gonopteryx rhamni and *Cleopatra*, one of each, Florac.

Thecla ilicis, var. *cerri*, and *T. acacia*, very common but worn, Florac.

Polyommatus Alciphron, var. *Gordius*, common, Florac. *P. Dorilis*, very abundant, Château de la Caze. *P. Phlaeus*, scarce.

Lycæna Argus, *Astrarche*, *Icarus*, *Escheri*, *bellargus*, *Hylas*, all fairly common and generally distributed. *L. Corydon* was very common at Mende, ♀, usual type. *L. meleager*, this beautiful "blue," of which I took 2 ♂ and 2 ♀, was just commencing to emerge at Florac. *L. Dolus*—this "blue" has a limited area of distribution, occurring in France in the departments of Var and Lozère, also in Piedmont. We found it somewhat sparingly at Florac, on the Causse Méjean a few, indeed we met with it at all points visited, but it was only abundant at Balsièges near Mende at the foot of the Causse Sauveterre, in a dried up water-course among a luxuriant growth of lavender. The ♂ of this interesting blue appears very "white" on the wing; not knowing the species the first specimen I captured I took for an albino specimen of *L. Damon*! The ♀ is very close to the ♀ of *L. Damon*; in *Dolus*, however, faint traces are seen of marginal "peacock eyes" on the hind-wing, and the arrangement of the spots on the under-side of the fore-wing is also different in this species, forming the letter "S." *L. Damon*, on the Causse Méjean, flying in company with *L. Dolus*. *L. argiolus*, Florac. *L. minimus*, Florac.

Limenitis Camilla, occasionally, Florac, Mende.

Vanessa c-allum, *polychloros*, *Antiopa*, occasionally seen. *V. cardui*, very common at Florac.

Melitæa Didyma, a very abundant butterfly at Florac and elsewhere. *M. Phœbe* and *Athalia*, Florac.

Argynnis Paphia, *Aglais*, *Adippe*, *Niobe*, *Daphne*, and *Latonia*, occasionally at Florac.

Melanargia Galathea, a very abundant butterfly; *ab. leucomelas*, by no means scarce, as common nearly as the type. *M. Japygia*, var. *Cleanthe*—in 1899, when I visited the Causse Méjean, this species was not out by June 27th; I expected therefore to find it well on the wing this year on July 18th, but I only met with two females, so the species was practically over, in consequence no doubt of the continued hot weather. *Cleanthe* flies much faster than *Galathea*, which also occurred on the Causse, and more resembles *Syllius* in flight. The French form of this species it would appear is smaller than the Spanish one. Specimens in my cabinet labelled "Castile," are much larger in size than the two I captured.

Erebia Stygne, worn, the only *Erebia* seen, Florac.

Satyrus Circe, common, Florac—this magnificent Satyrid in perfect condition was quite common flying among and resting on the chestnut trees on the lower slopes of l'Empezou at Florac. *S. Briseis*, in very fine condition on open stony places. *S. Alecyone*, Florac, Château de la Caze, common. *S. Semele*, a fine large form, Florac, very common. *S. statilius*, apparently just coming out, two ♂, Château de la Caze. *S. actæa*, and *S. Dryas*, fairly common throughout.

Pararge Megæra, several, Florac.

Epinephile Janira and *Tithonus*, common and generally distributed.

Cænonympha Pamphilus, *arcania*, and *Dorus*, common, the latter specially so at Florac.

Syrichthus alveus, fairly common. *S. Sao*, Florac.

Hesperia Thaumias, worn. *H. comma*. *H. Actæon*, Belsièges.

I had little opportunity of collecting the moths, but I noticed the following :—

Sphinx convolvuli, at Château de la Caze, at rest, and at Le Rozier.

Saturnia pyri, at Le Rozier.

Callimorpha Hera, occasionally.

Acidalia rusticata, Mende.

Mamestra chrysozona (*dysodea*) not uncommon on *Lactuca virosa*, Mende, &c.

Leucania lithargyria, two at rest on flowers, Mende.

Ortholitha mœniata, Mende.

Shrublands, Eltham, Kent :

September 23rd, 1901.

NOTES ON HAWAIIAN ACULEATE HYMENOPTERA.

BY R. C. L. PERKINS, B.A.

In my descriptions of the Aculeate *Hymenoptera* in vol. i, pt. 1, of the "Fauna Hawaiensis" there are several errors of identification, &c., which it seems advisable to correct at once, as it may be a considerable time before these corrections can be made in that work. A good many of these errors are due to the very incomplete collection of Oahuan species that had then been made, but now that this deficiency has been made good by my recent collections, the species frequenting Oahu are as well known as those from the other islands.

Pison iridipennis, Sm.—I stated in *op. cit.*, p. 14, that this species was unknown to me. In this I was in error, as it is very common; I had confused it with *P. hospes*, Sm., from which it is very distinct. Smith's description of the wings as "beautifully iridescent" misled me, as there is little difference between the two species in this respect, in most of the examples. As a matter of fact, *P. hospes* belongs to the genus *Pisonitus*, Shuck., if that be valid, but the Hawaiian species varies extremely in neurulation, frequently having only two cubital cells either on one or both sides, and is otherwise unstable, and I see no characters to separate it from *Pison*, except the neurulation.

Crabro distinctus, Smith, Cat. Hym. Ins., iv, p. 422.—I omitted all reference to this species, the type of which should be in the British Museum, but which, like other of the Beechy expedition specimens, is apparently lost. I now find it to be a highly coloured form of the ♀ of my *C. notostictus*, which becomes a synonym. The commoner form of *C. distinctus* is very unlike that of the Beechy specimen, having much less conspicuous yellow markings, sometimes none at all on the abdomen, and is often much larger, but I have taken intermediate forms, and there is no doubt as to the identity.

Polistes hebraeus, Fab.—There are two common species included under this name, which I considered to represent a dark and light form of one species. They are abundantly distinct by the ♂ characters; the sixth ventral segment in each is

rather differently formed, and the flattened spines with which it is armed are in the dark form short, about as long as the width of the flat surface; in the light form elongate, twice as long as wide and dilated apically.

Xylocopa æneipennis, de Geer, should be *X. chloroptera*, a correction already made by Herr Alfken.

In remarks on the *Eumenidæ*, *op. cit.*, p. 31, I stated that the measurements were taken from the head to the apex of the first abdominal segment. This is, of course, a mistake, it being usual to measure these insects to the apex of the *second* segment, as is indicated at the end of the diagnosis of the first species described. The appended table of the Oahuan species of *Odynerus* enables me to correct several mistakes in this genus, and to indicate two new genera and several new species, which I hope to fully characterize in a subsequent part of the "Fauna Hawaiiensis," together with other genera and species. Three species collected by the Beechy expedition are herewith included, viz., two described by me for the first time, *op. cit.*, p. 74 (*O. oblitus* and *O. relictus*), and one described by de Saussure from the same source (*O. nautarum*), the type of which is lost. With regard to the other species brought back by this expedition, *O. obscure-punctatus*, Blackb., and *O. infaustus*, Perk., were probably obtained on Hawaii, and *O. sandwichensis*, de Sauss., on Maui and Lanai, the latter probably identical with *O. rubritinctus*, Sm.; de Saussure's type in the British Museum not being forthcoming. Lay, the collector for the Beechy expedition, was left on Oahu in ill-health and picked up on the return journey, and this gave him ample time to visit the other islands, but whether he did so I have no information. At any rate, I now feel sure that the above-named species were not obtained on Oahu, but were collected elsewhere by Lay himself or by others for him.

Of the species included in the following table I may add that, excluding the widely-spread *O. nigripennis* and *O. frater*, and possibly *O. erro*, all are peculiar to Oahu, and it is improbable that any of them will be found on other of the islands.

SYNOPSIS OF OAHUAN SPECIES OF *ODYNERUS*.

- 1 (10) Thorax or abdomen or both with red markings.
- 1a (1b) Basal abdominal segment entirely red above, or at most a little infusate,
2nd segment also largely or entirely red, as also the tegulæ...
O. frater, D. T.
- 1b (1a) Basal abdominal segment black with red apical margin.
- 2 (7) Second ventral segment of abdomen greatly and abruptly raised behind
the transverse sulcature.
- 3 (6) Prothorax with red markings.
- 4 (5) Second ventral segment extremely strongly raised from sulcature, meso-
thorax duller and more closely and regularly punctured...
O. pseudochromus, Perk.
- 5 (4) Second ventral segment less strongly raised, mesothorax more shining
and irregularly punctate *O. leiodemas*, Perk.
- 6 (3) Prothorax and mesopleura without red spots (♂ unknown)...
O. paludicola, sp. nov.
- 7 (2) Second ventral segment not strongly and abruptly raised behind the
sulcature.

- 8 (9) Propodeum rugose or densely rugosely punctate.
- 8a (8b) Face with a red line entering the sinus of the eye, mesothorax with red lines *O. homaophanes*, sp. nov.
- 8b (8a) Face without such a line, mesothorax entirely black...
O. eucharis, sp. nov.
- 9 (8) Propodeum nearly smooth, with only feeble punctures...
O. oahuensis, D. T.
- 10 (1) No red markings on thorax or abdomen, rarely some of the abdominal segments have an indistinct testaceous margin.
- 11 (24) One or more entire yellow or white bands on the abdomen (thorax often with yellow markings).
- 12 (13) Mandibles in both sexes entirely or almost entirely red (δ with the clypeus extremely deeply emarginate at apex, that of the φ distinctly but much less deeply) *O. xerophilus*, sp. nov.
- 13 (12) Mandibles at most red or piceous on their apical half, generally for the most part black. Clypeus of δ never extremely deeply emarginate.
- 14 (15) Second ventral segment behind the costæ with a distinct, though not deep depression, which is widely triangular. (δ with the clypeus rather deeply emarginate, and the scape of the antennæ entirely yellow in front; φ with a yellow spot on each side of the propodeum near the insertion of the abdomen) *O. nautarum*, Sauss.
($\varphi = O. nesotrephe$ s, P.)
- 15 (14) Second ventral segment behind the costæ often flattened but without a distinct wide triangular depression, if a depression is present it is very narrow, sublinear or linear. (δ clypeus never deeply emarginate, often with an apical impression giving an appearance of a stronger emargination than is really present; scape of antennæ very rarely entirely yellow in front, often all black; φ without yellow spots laterally on the propodeum near the insertion of abdomen).
- 16 (17) Second ventral segment abruptly though not greatly raised from the apices of the costæ, depression feeble and linear for the most part; wings fuscous, shining, but without blue iridescence...
O. waianaeannus, Perk.
var. = *flosculus*, Perk.
- 17 (16) Second ventral segment flattened or faintly convex behind costæ, never abruptly raised from their apices, wings often with a distinct blue iridescence.
- 18 (19) Costæ of second ventral segment very short, shorter than the tumid basal part of the segment anterior to them ... *O. acalogaster*, Perk.
- 19 (18) Costæ not very short, the middle ones generally long and not shorter than the basal division of the segment.
- 20 (23) Wings with more or less distinct blue iridescence, clypeus of δ nearly always and the thorax often marked with yellow.
- 21 (22) Maxillary palpi of φ very long and beautifully fringed with long hairs; δ , front of head rather remotely punctured, maxillary palpi more developed *Pseudopterocheilus* (gen. nov.).
relictus, Perk.
- (Type species, *Odynerus pterocheiloides*, Perk.).

- 22 (21) Maxillary palpi of ♀ normal, head of ♂ closely punctured in front, its maxillary palpi less developed *O. lithophilus*, sp. nov.
- 23 (20) Wings for most part fuscous, shining, but without distinct blue iridescence,* ♂ clypeus and thorax entirely black (♀ unknown)...
O. acyanus, sp. nov.
- 24 (11) Abdomen black above, not yellow-banded, rarely with the apices of some segments narrowly and inconspicuously testaceous. Thorax never marked with yellow.
- 25 (26) Dorsal and posterior faces of post-scutellum sharply defined by a serrulate ridge, easily seen from in front.
- 25a (25b) Costæ of second ventral segment more or less obsolete...
O. nigripennis, Holmg.
- 25b (25a) Costæ long and well-developed *O. epipseustes*, sp. nov.
- 26 (25) Postscutellum without serrulated ridge.
- 27 (38) Wings dark, with conspicuous blue or purple iridescence.
- 28 (31) Intermediate tibiæ without a true calcar, only with short spines at the apex. (Propodeum smooth, basal abdominal segment evenly curved backwards from near the petiole)..... *Nesodynerus*, gen. nov.
- 29 (30) Second ventral segment simply flat beneath behind the costæ...
N. rudolphi, D. T.
- 30 (29) Second ventral segment with a shallow but evident triangular depression behind the costæ *N. optabilis*, sp. nov.
- 31 (28) Intermediate tibiæ with a calcar (propodeum often rough, basal abdominal segment very strongly curved in lateral view, so as to be vertical or subvertical in front).
- 32 (37) Propodeum rugose or rugosely punctate, second ventral segment with the whole series of costæ well developed, the depression wide and shallow.
- 33 (36) Second dorsal segment of abdomen with shallow but distinct puncturation.
- 33a (33b) Mesothorax densely subrugosely punctured, the punctures of different sizes, but both kinds conspicuous..... *O. erro*, Perk.
- 33b (33a) Mesothorax not densely subrugosely punctured, the smaller punctures excessively minute when present.
- 34 (35) Mesothorax not very dull, scutellum very distinctly, generally rather deeply, though remotely punctured *O. montanus*, Sm.
- 35 (34) Mesothorax very dull, scutellum with sparse and very feeble punctures...
O. illudens, sp. nov.
- 36 (33) Second dorsal segment hardly visibly punctured..... *O. iopteryx*, Perk.
- 37 (32) Propodeum smooth, second ventral segment rather strongly and abruptly raised at the sides from the apices of the costæ, which are subobsolete, or entirely effaced about the middle of the series... *O. unieus*, Perk.
- 38 (27) Wings shining fuscous, without conspicuous blue or purple iridescence.
- 39 (39a) Intermediate tibiæ without a calcar, second ventral segment without a depression, its basal portion very large and tumid, much longer than the costæ *Nesodynerus oblitus*, Perk. (an gen. nov.?).

* In all cases the colour of the wings is described from examples in which these parts are unfolded.

- 39a (39) Intermediate tibiae with a calcar, basal portion of second ventral segment normal.
- 40 (41) Second dorsal segment in dorsal aspect raised in a conical-tuberculate form at about one quarter of its length from the base...
O. pterophaennes, Perk.
- 41 (40) Second dorsal segment only convex above in dorsal aspect, not of conical-tuberculate form. Species with surface duller than in 40.
- 42 (43) Depression of second ventral segment wider and shallower, ♀ with the scutellum much more feebly punctured than the mesothorax...
O. dubiosus, Sm.
- 43 (42) Depression of second ventral segment narrower and deeper, ♀ with the scutellum differing little from the mesothorax in its punctures...
O. threnodes, Perk.

This table will enable any one to distinguish with ease any of the 27 species, excepting perhaps *O. pseudochromus* from *O. leiodemas* and *O. threnodes* from *O. dubiosus*, where the distinctive characters are of degree only. With specimens of each for comparison their separation is perfectly easy. *O. lithophilus* is a singularly variable species in puncturation and otherwise, and may possibly become a synonym of the unique *O. acælogaster*, described by me. The type of *O. nautarum*, de Sauss., appears to be lost, but I have no doubt a series of specimens I have taken on Oahu belong to that species, although Saussure's description is not quite accurate.

Honolulu : July 2nd, 1901.

CURIOUS EXPERIENCE WITH *LASIOCAMPA QUERCÛS*: SEQUEL.

BY EDWARD ANDREWS.

In the May issue of this Magazine (*ante* pp. 124—126) I gave an account of a brood of *L. quercûs* which I succeeded in rearing through the winter; the first larva spinning up on December 15th, and the first imago emerging about February 23rd. A couple out of this brood paired in the middle of March, and from them I have since reared another brood. The seasons, which are usually followed by this species, have thus been lost; the food has also been somewhat changed, and the period of their lives considerably shortened. I have, in fact, as nearly as possible produced two broods within the time allotted by our English climate for only one.

The eggs of this second brood, after lying dormant for six weeks, hatched at the end of April. I fed the larvæ during their first stage on oak, and during their succeeding stages on willow; they developed rapidly, the first one spinning up about July 15th, and the first imago emerging about August 24th. By comparing the span of their existence with that of the winter brood, and also by comparing it with

that of an ordinary *quercus* in the South of England, it will be seen how considerably their lives have been shortened.

The first larva of the winter brood hatched on August 17th, and the first cocoon was formed on December 15th, showing a larval period of 116 days. The first larva of the summer brood hatched on April 29th, and the first cocoon was formed about July 15th, allowing a larval period of 77 days. The average life of a larva of *quercus* in the south of England is, roughly, about 290 days. It may therefore be owing to this rapid growth that a large number of the summer brood have failed.

As far as I am aware no signs of sickness manifested themselves until my larvæ were full fed; then more than a dozen and a half died. After devouring with the usual voracity the fresh willow with which I kept them constantly supplied, they became limp, fell to the bottom of their cage, and rapidly decomposed into a pulpy mass as black and dense as pitch. A certain weakness appears to have spread throughout the entire brood, for many of the cocoons are so frail and brittle that they may be smashed with the greatest ease between the fingers; and some of the pupæ are so soft that they have become partly flattened merely by the pressure resulting from their own weight against the sides of their cocoons. The earlier cocoons were the strongest, and the later ones were the weakest.

The larvæ appeared to suffer from a too loose or watery condition of the body; it is thus possible to lay the blame on the young willow with which I chiefly furnished them, for willow is certainly a soft and juicy foliage compared with what they devour in the natural state. But Mr. Barrett has suggested that some inherent weakness may have existed in the original female which I took in the New Forest early in August, 1900. There is evidently a constitutional peculiarity to account for somewhere, setting apart warm conditions and clean fresh food. I will cite one curious instance. The first imago of the winter brood emerged about February 23rd, showing a pupal existence of 70 days; yet I have still in my possession one pupa of this winter brood, which, in spite of being kept in exactly the same temperature and place as all the others, still evinces no sign of emerging; it is alive, and in all probability will pass through the winter. Here we seem to have an example of constitutional peculiarity as marked as can be desired.

All the imagos which have at present resulted from the summer brood are large, and only slightly variable in tint. I have paired a couple, and now am awaiting the arrival of another generation of larvæ, which will be forced to face the winter. With regard to the winter brood it may be of interest to state, that the imagos bore the characteristics of the variety *callunæ*, which appears to be taking the place of *quercus* in the southern parts of England. On exhibiting a specimen of the summer brood to an authority upon this point, however, I was told that it was a true *quercus*. The fact therefore stands, that I have reared both *quercus* and *callunæ* from one female imago—*callunæ* resulting from the slow and cold period of winter, and *quercus* resulting from the swift and warm period of summer.

192, Devonshire Road, Forest Hill, S.E.:

October 1st, 1901.

RE-DISCOVERY OF *AGRYPNETES CRASSICORNIS*, McLACH.

BY ROBERT McLACHLAN, F.R.S., &c.

To me the re-discovery of a lost or little-known species is often of more interest than the acquisition of a new form. The following is a case in point:—

In November, 1876, I described in my "Monographic Revision of *Trichoptera* of the European Fauna," Suppl. Pt. i, p. ii, pl. xxiv, a very singular Phryganeid, apparently allied to *Agrypnia*, Ct., under the name *Agrypnetes crassicornis*; only one specimen, a ♂, was known. It was captured near Helsingfors in Finland (July 3rd) by Prof. J. A. Palmén, and is now in the Helsingfors Museum. It may be noted that the insect is of considerable size, and not likely to be overlooked on the score of being inconspicuous.

Time went on, and nothing further was heard of the species, notwithstanding that considerable attention was being paid to these insects. And in my "First Additional Supplement," 1884, I went so far as to suggest (p. 2, foot-note) that the type might be "an unnatural hybrid."

Under these circumstances my surprise and delight may be imagined when this morning (a quarter of a century after my original publication of the species) I received a specimen of *Agrypnetes crassicornis* from my old and esteemed correspondent Prof. John Sahlberg, together with a letter that throws a flood of light on the subject, and confirms the validity of genus and species. It seems that three examples are known, all males. The type I have already alluded to. A second was found by Miss Elen Elmgren, on July 29th, 1891 (?) on Ramsö Island; this example I think has not been previously recorded. And last summer Prof. Sahlberg captured a third example (which he has most generously presented to me) at Hangö on July 9th, on a loamy sea-shore overgrown with *Eleocharis* and grasses. All the localities are on the shore of Southern Finland. It now remains to know what the ♀ is like, and what are the habits of the larvæ.

Lewisham, London :
October 5th, 1901.

COLEOPTERA IN THE SOUTH-WEST OF IRELAND.

BY G. C. CHAMPION, F.Z.S.

During a recent visit to Ireland my friend Colonel Yerbury was kind enough to collect a large number of beetles for me, on the

chance of there being something of interest amongst them. Most of these insects prove to be common species, still there are a few that are worthy of note, as *Donacia obscura*, *Elaphrus uliginosus* (not previously recorded from Ireland), &c. Mr. J. N. Halbert, who is now preparing a complete list of the *Coleoptera* of Ireland for publication, has also examined Col. Yerbury's captures, and as he intends including a complete list of these insects in his Catalogue, it will suffice here to note a few of them. *Otiorrhynchus blandus* has already been recorded by me from the coast of Ireland, from Kilkeel, Co. Down.*

KENMARE AND CARAGH LAKE
(June 26th—July 7th, Aug. 13th—
Sept. 1st).

Harpalus rubripes, var.
 " *latus*.
Amara ovata.
 " *lunicollis*.
Pterostichus striola.
Calathus piceus.
Leistotrophus murinus.
Pæderus fuscipes.
Necrodes littoralis.
Silpha atrata, var. *subrotundata*.
Cytilus varius.
Aphodius fætens.
 " *depressus*.
Hydrocyphon deflexicollis.
Aromia moschata.
Donacia crassipes.
 " *thalassina*.
Chrysomela Banksi.
Gastrophysa raphani.
Prasocuris marginella.
Lochmæa caprea.
Balaninus cerasorum.
Rhopalomesites Tardyi.
Polydrosus cervinus.

GLENGARIFF
(June 11th—25th).

Elaphrus uliginosus.
 " *cupreus*.

Pterostichus anthracinus.
Harpalus latus.
Taphria nivalis.
Onthophilus striatus.
Dascillus cervinus.
Lamprosoma concolor.
Donacia obscura.
 " *comari*.
Phyllobius calcaratus.
Barynotus obscurus.
Rhopalomesites Tardyi.
Rhynchites minutus.

PARKNASILLA
(July 11th—25th).

Carabus glabratus.
 " *granulatus*.
Olisthopus rotundatus.
Leistotrophus murinus.
Cetonia aurata.
Chrysomela Banksi.

WATERVILLE
(July 26th—Aug. 8th).

Carabus glabratus.
 " *granulatus*.
Pterostichus cupreus (black var.).
 " *striola*.
Bembidium saxatile.
Aleochara succicola.
Stenus guttula.

* Ent. Mo. Mag., xii, pp. 82, 124.

Silpha atrata, var. *subrotundata*.

Neerophorus humator.

Corymbites tessellatus.

Onthophagus fracticornis.

Donacia bidens.

„ *lemnæ*.

Liophæus nubilus.

Otiorrhynchus blandus.

„ *rugifrons*.

„ *ligneus*.

Meloe violaceus.

VALENTIA ISLAND

(August 7th—12th).

Harpalus latus.

Pterostichus striola.

Badister bipustulatus.

Taphria nivalis.

Anchomenus parumpunctatus.

Ocypus ater.

Neerophorus vespillo.

Otiorrhynchus blandus.

Lagria hirta.

Horsell: October 14th, 1901.

BALEARIC INSECTS.—DIPTERA.

COLLECTED IN MAJORCA AND MINORCA (MARCH AND APRIL, 1900) BY
E. B. POULTON, OLDFIELD THOMAS, AND R. I. POCKOCK.

BY COL. J. W. YERBURY, LATE R.A., F.Z.S., &C.

The *Diptera* collected by Professor Poulton and Messrs. Thomas and Pocock are not of any particular interest, but are such as may be collected in any part of Europe; the most interesting species are *Phoranthia subcoleoptrata* and *Bombylius pallens*.

Where the name of the island is omitted, Majorca is always to be understood; where a reference to the collector is omitted, Poulton is to be accepted. The names Thomas and Pocock are indicated by their initial letters.

BIBIONIDÆ.

Dilophus humeralis, Zett.?, 2 ♀, Pollensa, slope of Puig de Maria.—*humeralis*,? Zett., April 2nd, 1900, 2 ♀, Miramar, garden of Hospideria, March 27th, 1900, in bad condition (gummed on card), and therefore difficult to determine.

Bibio Marci, L., ♂ and ♀, Pollensa, base of M. Sentuiri; 2 ♂ and 1 ♀. Miramar, garden of Hospideria, March 27th, 1900; 1 Palma, March 25th, 1900, outside Castle Bellver, 400 ft.—*sp. inc.*, 1 ♂, Pollensa, Puig de Maria, April 2nd, 1900, gummed on card.

CHIRONOMIDÆ.

Chironomus, *sp. inc.*, Albufera, April 13th, 1900 (T. and P.), fragment.

CULICIDÆ.

Culex, *sp. inc.*, 2 ♀ specimens, 1 near Maracor, Porto Cristo, March 31st, 1900; 1 Palma, near Porto Pi, March 24th, 1900, different species in bad condition.

TIPULIDÆ.

Pachyrhina maculosa, Meig., ♂ and ♀, *in coitu*, Pollensa, slopes of Monte Sentuiri, April 2nd, 1900; 1 ♂, Pollensa, April 2nd, 1900, slopes of Puig Maria 1 ♂ and 2 ♀, Inca (T. and P.).

ASILIDÆ.

Dysmachus trigonus, Meig., Castle Bellver, 350 feet, March 26th, 1900, single specimen.

BOMBYLIDÆ.

Bombylius pallens, Meigen (Eur. Zweif. Ins., vol. ii, p. 214), ♂, Pollensa, slopes of Puig de Maria, April 2nd, 1900; Inca, March, 2 ♂ and 1 ♀ (T. and P.); originally described from Portugal.

SYRPHIDÆ.

Melanostoma, *sp. inc.*, ♀, Palma, March 24th, 1900.—*sp. inc.*, 2 ♀, Miramar grounds, March 27th, 1900, and Pollensa Road to Castillo del Rey, April 3rd, 1900 (these three specimens being all ♀ are difficult to identify, and in the absence of any guide for the identification of ♀ *Melanostoma* and *Platychirus*, even the genus of the specimen must be left in doubt).

Syrphus lasioptthalmus, Zett. ?, 2 immature ♀ specimens, San Cristobal, Minorca, April 10th, 1900 (T. and P.); Miramar grounds, March 27th, 1900.—*nitidicollis*, Meig., Inca (T. and P.); Pollensa, April 1st, 1900.

Catabomba pyrastris, L., ♀, outside Castle Bellver, 400 ft., March 26th, 1900.

Eristalis tenax, L., 7, Castle Bellver, 250—400 ft., March 25th, 1900; 2, outside Castle Bellver, 400 ft., March 26th, 1900; 1, Miramar grounds, March 27th, 1900.—*æneus*, Scop., 4 ♂, Miramar grounds, May 27th, 1900.

Myiatripa florea, L., Inca, Majorca, March, 1900 (T. and P.).

Syritta pipiens, L., ♀, Inca, Majorca (T. and P.), ♂ Pollensa, base of Monte Sentuiri, April 2nd, 1900; ♂, San Cristobal, Minorca, April 10th, 1900 (T. and P.), the last specimen seems aberrant; the hind femora being without any light marking. It is, however, carded, and is moreover in such bad condition that it is impossible to state definitely the species to which it belongs.

Chrysoclamys cuprea, Scop., Miramar grounds, Majorca, March 27th, 1900, a single very dark specimen of the var. *nigricornis*.

Chrysotoxum intermedium, Meig., ♀, 1, outside Castle Bellver, 400 ft., March 30th, 1900; ♂, Pollensa, Monte Sentuiri, April 2nd, 1900.

CONOPIDÆ.

Zodion cinereum, F., outside Castle Bellver, 400 ft., March 30th, 1900.

Myopa dorsalis, F., outside Castle Bellver, 400 ft., March 26th, 1900, Mahon, Minorca, near Talyot of Trepuco, April 6th, 1900.

MUSCIDÆ. (TACHININÆ.)

Altophora (Phoranthia) subcoleoptrata?, single specimen, Miramar grounds, March 27th, 1900.

Pelleteria tessellata, F., 2, grounds, Castle Bellver, 300-400 ft., March 30th, 1900.

(DEXINÆ.)

Nyctia halterata, Pz., 1, outside Castle Bellver, 400 ft., March 30th, 1900.

(SARCOPHAGINÆ.)

Sarcophaga vulnerata, Schin., 1 ♂, Palma, March 24th, 1900, 1 ♀, Miramar grounds, March 27th, 1900; ♀, Inca, March, 1900 (T. and P.).—*albiceps*, Meig., 2 ♂, in Castle Bellver grounds, 250—400 ft., March 25th, 1, outside Castle, 400 ft., March 26th.—*hæmorrhœa*?, Minorca, Mahon, April 6th, 1900, near T. of Trepuco.

The *Sarcophaginae* are a family which requires the services of an expert for correct identification. The above should therefore be taken with caution.

Cynomyia sepulchralis, Meig., Singleton, ♂, outside Castle Bellver, 400 ft., March 30th, 1900.

(MUSCINÆ.)

Calliphora erythrocephala, Meig., 4, Pollensa, April 1st; 2, Miramar grounds, March 27th, and 1, Palma, March 24th.—*romitoria*, L., 3 specimens, Pollensa, April 1st, 1900.

Musca corrina, F., near Manacor, Porto Cristo, March 31st, 1900, 1 spec.—*domestica*, L., Palma, March 24th, 1900, three specimens.

Idia lunata, F., 1 ♀ outside Castle Bellver, 400 ft., March 30th, 1900.

Graphomyia maculata, Scop., 4 ♂, Pollensa, base of Monte Sentuari, April 4th, 1900.

Cyrtoneura stabulans, Fall.?, San Cristobal, Minorea, April 10th, 1900 (T. and P.), single specimen; spoilt by grease and therefore difficult to identify with certainty. Although the nomenclature adopted by Brauer and Bergenstann has been followed, still for the sake of convenience the species have been located in the old sub-families.

ANTHOMYIDÆ.

Hyetodosia scutellaris, Fall., Soller, March 29th, 1900.—*semicinerea*, Wied.?, 2, Manacor, Porto Cristo, March 31st, 1900; 1, Soller, Binirach, March 28th, 1900; 1, Miramar grounds, March 27th, 1900.

Ophyra anthrax, Meig., 1 ♀, Majorca, Pollensa, slopes of Puig de Maria, April 2nd, 1900; 2 ♀, Minorea, San Cristobal, April 10th, 1900 (T. and P.).

Spilogaster?, *sp. inc.*, near *depuncta*, Fall., Inca, March 24th, 1900 (T. and P.), headless.

Pegomyia, sp. inc., 2 ♀, Manacor, Porto Cristo, March 31st, 1900, carded, and therefore difficult to identify.

Caricea tigrina, F., ♂, Albufera, Majorca, April 15th, 1900 (T. and P.).

Fuomyia, sp. inc., Palma, March 24th, 1900, following Becker; this genus has been placed among the *Anthomyidæ*.

CORDYLURIDÆ.

Scatophaga stercoraria, L., Inca, March, 1900 (T. and P.).

TRYPETIDÆ.

Acidia heraclei, L., Miramar grounds, March 27th, 1900.

SEPSIDÆ.

Sepsis, sp. inc., probably *cynipsea*, Linn., Majorca, Sollen, March 29th, 1900; 3, Minorea, Mahon, near T. of Trepuco, April 6th, 1900; 4 gummed specimens, difficult to identify.

Piophilila, sp. inc., 1, outside Castle Bellver, 400 ft., March 30th, 1900, gummed.

BORBORIDÆ.

Limosina, sp. inc., Minorea, Mahon, 1 near T. of Trepuco, April 6th, 1900; 1, Palma, March 24th; 1, Pollensa, Ap. 4.

Three gummed fragments of different families quite undecypherable.

St. James's, S.W.:

October, 1901.

Resting of Vanessa urticæ.—In the middle of June last year two specimens of *V. urticæ* took up positions in a dark part of a passage in my house. One remained only about a week, but the other stayed until the middle of August and then departed spontaneously early one morning; its departure coinciding with the appearance of the second brood on the wing.

This year the species was later, owing to the cold spring, but about the first week in July several individuals entered the house. Most of them stayed a few days only, but two are still in the positions they first took up, and during September have been joined by several of the second brood. Of this latter, in common with the other species of *Vanessa*, and with *Gonepteryx rhamni*, very few individuals have been seen here, although larvæ were common; and I have little doubt that most of them have gone into winter quarters almost immediately on emergence. Had it not been so, it is possible that the dormant individuals of the first brood would have joined the second brood on the wing.

Although this habit has not, so far as I am aware, been recorded before, it may not be unusual. It would seem to be of the same nature as the retarded emergence of pupæ, and the different rate of growth of larvæ of the same brood, whereby individuals of one generation are enabled to pair with those of the next, or a subsequent generation.—CHARLES W. WATTS, Maidstone: *September, 1901.*

Colias Edusa at Seaton, Devon, in 1901.—After keeping a good look out for *C. Edusa* in this neighbourhood earlier in the year, I failed to see any until September 24th, when, after some days of southerly breezes, I happened to meet with a single male in good condition flying over Haven Hill. In the spring and first part of the summer the prevalent winds were adverse to the passage of migrants from the continent; and last winter and spring were unfavourable to the propagation of offspring from eggs laid last autumn.—A. E. EATON, Woodlands, Seaton, Devon: *September 30th, 1901.*

Sphinx convolvuli at Eltham.—It would appear that *Sphinx convolvuli* has been somewhat common at Eltham this season, as on September 26th and 27th I noticed at the flowers of the tobacco plant quite a number of specimens, one of which I captured.—A. H. JONES, Shrublands, Eltham: *October 2nd, 1901.*

Sphinx convolvuli at Kingston-on-Thames.—A large female specimen of this insect was brought to me this afternoon from the Kingston Union; it had been taken by the Master when endeavouring to obtain admission to the Workhouse. The specimen is "no pauper," but is in the finest possible condition, and could not long have emerged from the pupa.—H. GOSS, Surbiton Hill: *September 21st, 1901.*

Sphinx convolvuli at Hoylake.—A fine specimen of the *Convolvulus Hawk Moth* was taken on a fishing boat in "the gutter" and brought to me on the evening of September 30th last. The insect, which was greatly feared by its captors on account of its supposed stinging capabilities, was in very fair condition, considering it had been allowed to flutter about for some time in a paper bag of somewhat ample dimensions.—E. J. BURGESS SOPP, Hoylake: *October, 1901.*

Sphinx convolvuli in Gloucestershire.—On September 23rd, a very fine specimen of *Sphinx convolvuli*, evidently just emerged from the pupa, was found at rest on the garden entrance of Mr. V. R. Perkins' residence, by his daughter, between 7 and 8 o'clock a.m., and is now on one of his setting boards.—V. TOULMIN, Wotton-under-Edge: September 27th, 1901.

Sphinx convolvuli at Woking.—One of my sons found a very good example of the above at rest on a paling close to my house on the morning of Thursday, the 3rd instant.—EDWARD SAUNDERS, St. Ann's, Woking: October 9th, 1901.

Larva of Sphinx convolvuli at Guestling, Sussex.—A larva of this species was brought to me on August 24th, but I am sorry to say it escaped almost immediately. Although the perfect insect is not uncommon, the larva seems to be very rarely met with in this country. It has, however, I believe been met with in several instances this summer.—E. N. BLOOMFIELD, Guestling Rectory: September 25th, 1901.

Clostera anachoreta at Walmer, Kent.—A young friend, Mr. Gordon Murray, has shown me a short series of this species bred by him from eggs found on balsam poplar at Walmer, in June last. He found more than 40 eggs, in two clusters, but gave most of them to his friends, keeping only about a dozen eggs for himself, nearly all of which fed up satisfactorily.—ID.

Acherontia Atropos in Dumbartonshire.—With reference to Mr. Malloch's note in the October number of this Magazine (*ante*, p. 258), it may be of interest to some of your readers to know that I caught a Death's-head Hawk-moth at Ardpeaton, Loch Long, on September 7th last. It was crawling over dead leaves at the foot of a tree, quivering its wings, and making a squeaking sound. My attention was drawn to it by this last, which was distinctly audible from a distance of ten or twelve yards. The moth was in beautiful condition, and evidently not long emerged from the pupa.—W. EDGAR EVANS, 38, Morningside Park, Edinburgh: October 5th, 1901.

Additions to the Lepidoptera of Glanvilles Wootton since 1890.—Since the publication of the 2nd edition of my "*Lepidoptera of Dorsetshire*," in 1891, I have added the following species to the Glanvilles Wootton list:—*Lithosia aureola*, 1901; *Rusina tenebrosa*, 1899; *Agrotis saucia*, 1895; *Pachnobia rubricosa*, 1891; *Habrostola triplasia*, 1899; *Selenia lunaria*, 1893; *Fidonia pinivaria*, 1895; *Emmelesia unifasciata*, 1893; *Botys lancealis*, 1901; *Oncocera ahenella*, 1899; *Penthina sellana*, 1892; *Stigmonota puncticostana*, 1892; *Bupalis fuscocuprella*, 1899; *Asychna modestella*, 1894; *Elachista magnificella*, 1896; *E. Gleichenella*, 1899; *Opostega salaciella*, 1893. I have also taken the following of which previously only solitary specimens had occurred:—*Echmia dentella*, one in 1901; *Sphinx convolvuli*, in 1898; *Melanthia albicillata*, in 1894; *Hypena rostralis*, several; *Scopula lutealis*, in 1893; *Myelophila cribrella*, in 1899, several; *Rhodophaea rubrotibiella*, in 1901; *Orthotania ericetana*, several, in 1895; *Argyrolepis cnicana*, in 1899; *Tinea albipunctella*, in 1899. It must be remembered that Glanvilles Wootton has been almost continuously worked by my father or myself for ninety-five years.—C. W. DALE, Glanvilles Wootton: September 30th, 1901.

Phibalocera quercana attacking *rhododendrons*.—In July last I received a letter and parcel from Mr. H. Ewart, of Belfast. The parcel contained an imago and pupa case of the above moth, and the letter explained their presence in the following terms:—"Hitherto rhododendrons have been singularly free from the attacks of insects, but this year I have had several fine old well-established bushes literally stripped by a green caterpillar, which develops into the moth of which I send you a specimen by the same post." In my reply I suggested to Mr. Ewart that in case of a renewal of the attack some insecticide should be applied to the bushes with a syringe; and he replied, "We washed off a great many of the green caterpillars, but I fear we were not sufficiently alive to the numbers to be dealt with." This shows that the attack was very severe and there must have been something particularly favourable to the moth, as Mr. Ewart further remarks, "I have found no one about here so far who has seen the moth before." There are no oaks in the vicinity of the rhododendrons, but there is a large beam tree, and Mr. Ewart found "two or three leaves of it attacked in the same way." Another curious point about this attack is that it was confined to the one place, for Mr. Ewart says he could not hear of any one in the neighbourhood having suffered in the same way.

The moth was here, for I obtained a specimen, but it was not abundant, and I did not notice any indications of its presence on oak or any other tree or shrub, as I should have had there been a severe attack. It would be interesting to know if any one else has met with anything similar to the present case.—W. F. JOHNSON, Acton Glebe, Poyntzpass: *October 10th*, 1901.

Salix notatulus, Saund., and *Crabro aphidum*, Lep., in Scotland.—Mr. Saunders has asked me to record the occurrence of these two rare Aculeates in Perthshire. At Aberfoyle, on July 8th last, I took a male of *Salix notatulus*, Saund., on the hills, flying over a raised up sandy bank; with it occurred *Pompilus niger*, Fab., in great numbers, and a few *Salix pusillus*, Schiödde. On June 30th, the first day of my stay in the district, I was fortunate enough to take a female of *Crabro aphidum*, Lep., flying in a woodland path at Loch Ard. I believe this is the first record from Scotland for these two species. Mr. Saunders, with his usual kindness, has identified these insects for me.—A. E. J. CARTER, Selville Cottage, Portobello, Edinburgh: *October 9th*, 1901.

Andrena polita, Smith, in Kent.—On July 6th last, whilst collecting on the chalk hills near Halling, Kent, I had the good fortune to capture a fine specimen of *Andrena polita*, Smith. It was visiting the flowers of the trailing dog rose, *Rosa arvensis*, L. I again visited the spot in August, but failed to obtain another specimen. Mr. E. Saunders has been kind enough to confirm my determination of the species.—H. ELGAR, 3, St. Michael's Terrace, Fant Road, Maidstone: *September 2nd*, 1901.

[This is a most interesting capture, as the species has not been recorded from this country since F. Smith's time; he took it in the chalk pits at Northfleet in July some years prior to 1855.—E. S.]

Hymenoptera near Woking in the latter part of 1901.—The following are the only items of interest I can find among my captures of British *Hymenoptera* this year. I was abroad till July, and for various reasons have not collected steadily since, besides which I have noticed that in this neighbourhood several species were "over" earlier than usual (probably because of the exceptionally dry summer).

Chrysis succincta, L., has been quite common here; I took eleven specimens (males and females) on two days in July. *Salix notatulus*, Saunders, a large and highly coloured male (my first British capture of this species) at Clandon on July 15th. *Oxybelus mandibularis*, Dahlb., ♀, at Wisley, August 10th. *Crabro gonager*, Lep., ♀, near Cobham (Surrey), July 8th; *C. scutillatus*, Schv., ♂ & ♀, at Wisley, July 4th. *Prosopis cornuta*, Sm., many females, and *dilatata*, K., two females, all on *Daucus carota* at Woking, July 20th to 27th; but no male of either species! *Nomada atrata*, Smith (see Ent. Mo. Mag., 1900, p. 204), several of both sexes in two different localities near Woking, all on *Knautia arvensis*, along with *Andrena cetii*, Schr., August 15th to 19th. *Stelis 8-maculata*, Smith, ♂, at Mayford, near Woking, August 16th; this capture greatly pleased me, as I had never before taken any species of *Stelis* in England, though I have had no difficulty in finding them in many localities on the continent.—F. D. MORICE, Brunswick, Woking: September, 1901.

Meteorus fragilis, Wesm., parasitic on *Phalera bucephala*.—As no previous record has been made in this country of *Meteorus fragilis* having been bred from *P. bucephala*, I think it is worth mentioning, as by it some addition to its history will be noted. On September 21st last, while hunting for oak galls in Warleigh Wood, near Plymouth, I observed a twig of oak denuded of its leaves, from which were suspended about a dozen cocoons. On closer examination I found they proceeded from young larvæ, in second moult, of *P. bucephala*, others who had escaped the attack of *M. fragilis*, were in the act of putting on their third coats. Four larvæ had not changed; these I removed and placed in a box, by the next morning the parasitic larvæ from three had emerged, the fourth I tried to preserve for my cabinet, and in removing the viscera I also removed a parasitic larva. The flies, *M. fragilis*, duly emerged from their cocoons on October 2nd, barely twelve days from the time they left their host. Wesmæl says that the terebra is as long as the abdomen; Marshall's remarks, "but for this allowance must be made." I can confirm Marshall's statement, "Terebra about half the abdomen;" it is a trifle longer than the 1st abdominal segment, but not so long as the remainder of the abdomen.—G. C. BIGNELL, Saltash: October 3rd, 1901.

Gynandrous specimen of Halictus quadricinctus, Fab.—Mr. H. Elgar, of Maidstone, has captured a most interesting specimen of the above always rare species; it has the head, and apparently the head only, influenced bisexually. The right antenna is long, and formed just like that of a normal ♂, the left short, and just like that of a normal ♀; the effect produced by this asymmetry being most striking, especially as in this species the antennæ in the ♂ are unusually long and thick and largely testaceous. The shape of the face is somewhat intermediate between that of a ♂ and a ♀; the vertex is wide as in the ♀, but the clypeus is rather longer than that of an ordinary ♀ and shorter than a male's; it is simple in

front in the latter sex, *i. e.*, it wants the sharp angles which occur in the ♀, and has the usual yellow apical spot of the ♂, but the mandibles lack the curious dilatations so characteristic of the latter sex of *quadricinctus*. The rest of the insect appears to me to bear the characters throughout of an ordinary female.—EDWARD SAUNDERS, St. Ann's, Woking: *October 11th*, 1901.

Cœlioxya mandibularis, Nyl., at Wallasey.—Since announcing the addition of this bee to the British list in the July number of this Magazine, I have examined all the specimens of the genus *Cœlioxya* in my own collection, with the result that I am glad to report the discovery of another local example of *mandibularis*. On reference to my diary I find that I captured the specimen at Wallasey on July 5th, 1891; it was sitting upon a bare sandhill, at a spot not fifty yards from the post where Mr. Birch took his example last year. I have had the pleasure of showing the insect to Mr. E. Saunders, who kindly confirmed the identification.—WILLOUGHBY GARDNER, Reform Club, Liverpool: *September 20th*, 1901.

Coleoptera at Stornoway, Lewis.—Mr. McArthur has been kind enough to collect a few *Coleoptera* for me during the past summer at Stornoway, and although mostly common species, they are worth recording, more especially as several of them were not met with by Mr. J. J. Walker when he visited the island in 1895.* These species are marked with an asterisk in the following list:—

Carabus glabratus,* *C. clathratus* (two specimens only), *C. granulatus*,* (almost black), *C. catenulatus*, *Elaphrus cupreus*,* *Broscus cephalotes*,* *Amara aulica*,* *Dytiscus marginalis*,* *Acilius sulcatus** (common), *Gyrinus natator*,* *Colymbetes bistriatus*,* *Corymbites tessellatus*,* *C. cupreus*, *Athous hæmorrhoidalis*, *Campylus linearis*,* *Serica brunnea*,* *Geotrupes stercorarius*, *Aphodius rufipes*, *A. ater*, *Meligethes æneus* (abundant).—G. C. CHAMPION, Horsell, Woking: *October 1st*, 1901.

Information wanted as to Coleoptera eaten by Birds.—I am anxious to collect any evidence as to *Coleoptera* being eaten by birds, whether in confinement or otherwise. If possible I should be glad to know the generic names of any *Coleoptera* so devoured, and the names of the birds that devoured them; but I shall be very grateful for notice of remains of any beetles found in the crops of birds whilst being prepared for stuffing or for cooking. There is no doubt that birds do eat *Coleoptera*, but how far this is the case is a question, and it is still more doubtful how far they exercise discrimination between species. Any evidence as to the latter point will be much valued.—W. W. FOWLER, Rotherfield Peppard Rectory, Henley-on-Thames: *September 18th*, 1901.

Further Notes on Hydradephaga and Hydrophilidæ.—In the August (1900) No. of this Journal (see vol. xxxvi, p. 190) I gave an account of my collecting with the water-net during that season. Having worked throughout the present year again with some success, I am induced to give a short account of the results. Towards the end of March, in pools at Chobham, *Hydroporus obscurus*, Sturm,

* Ent. Mo. Mag., xxxi, pp. 182–184.

and *Berosus signaticollis*, Charp., with many commoner insects, opened the campaign. Easter was spent at Hastings, and near Pevensey I found *Copelatus agilis*, F., fairly common; an afternoon with Mr. Bennett at his locality at Bodle Street produced, out of a small stream, many very good things, amongst them being *Brychius elevatus*, Panz., *Deronectes latus*, Steph., *Gyrinus urinator*, Ill., *Hydroporus lepidus*, Ol., and five species of *Hydrana*, namely, *testacea*, Curt., *riparia*, Kug., *nigrita*, Germ., *gracilis*, Germ., and *pulchella*, Germ.; with them occurred *Potamius substriatus*, Müll. At Deal, a few days later, in ditches, I took *Haliphus variegatus*, Sturm, *Gyrinus elongatus*, Aubé, *Laccobius bipunctatus*, F., *L. alutaceus*, Thoms., *Noterus clavicornis*, De G., and *Copelatus agilis*, F., this last being very common.

Between April 20th and May 18th I paid several visits to some ponds in an old gravel pit (a locality I owe to the kindness of Mr. W. E. Sharp) near Hanwell. Here I was fortunate enough to capture several beetles which do not often fall to the lot of the collector: *Dytiscus circumflexus*, F., *Rhantus grapii*, Gyll., *R. exoletus*, Forst., *R. pulverosus*, Steph., *Hydaticus seminiger*, De G., *Ilybius ater*, De G., *I. obscurus*, Marsh., *Hydroporus granularis*, L., *Cœlambus impressopunctatus*, Schall., *Hydrophilus piceus*, L., *Hydrocharis caraboides*, L., quite common, *Hydrochus elongatus*, Schall., and many common things; here again *Copelatus agilis*, F., occurred in the greatest profusion.

In the afternoon of April 27th a visit to Woking secured a fine series of *Hydroporus flavipes*, Ol., out of ponds on Horsell Common, with *Rhantus exoletus*, Forst., etc. The net had a rest from the middle of May until August 17th, when I paid a short visit to Wicken Fen; again I was fortunate in my captures, securing from a small ditch *Dytiscus dimidiatus*, Berg., *D. punctulatus*, F., *Hydaticus transversalis*, Berg., and many commoner beetles, while out of pools in the Fen I obtained *Hydrophilus piceus*, L.

Since my arrival here I have only had one afternoon's collecting, when a visit to a small swift running stream near Polmont brought in *Hydroporus rivalis*, Gyll., *H. Davisii*, Curt., *Deronectes 12-pustulatus*, Fab., *Platanus maculatus*, L., &c., most of them being very abundant.—T. HUDSON BEARE, 2, Heriot Row, Edinburgh: October 5th, 1901.

Medon castaneus, Grav., in Richmond Park.—I was lucky enough to sweep a specimen of this very rare insect off herbage on the edge of a pond in Richmond Park on April 22nd last. Further visits failed to bring any more to light, and until we can discover something about the life-habits of this insect, it is evidently likely to remain very rare in our collections.—ID.

Attelabus curculionoides, L., attacking chestnut.—As it appears that this fact has been but seldom recorded, I may remark that I have been familiar with it for many years past; I think, indeed, that the insect now prefers chestnut to oak. It may be seen in profusion at Darent Wood where oak and chestnut grow mingled, and I have noticed it as being more numerous on the chestnut. It also uses this plant freely in the Forest of Dean and in the New Forest, as well as at Haslemere, and I think I have seen it elsewhere on the chestnut. The chestnut must be in the

bush state. I always supposed this must be well known, but I have been interested in it because the leaves of the chestnut are so different from those of the oak, and because the chestnut being an introduced plant in most of our woods, the *Attelabus* must have taken on the habit of making use of it comparatively recently. It is one among many proofs that instinct extends, or alters, according to circumstances, and is not absolutely fixed as some writers insist it is. Maurice Macterlinck has some observations on this subject in his charming work, "La vie des Abeilles."—D. SHARP, Cambridge : September 30th, 1901.

Two New Forest Dipterocecidies.—When in the New Forest last summer I noticed the edges of the oak leaves on some of the trees near Gritnam turned over so as to form a habitation for a little larva, which on examination proved to be a *Cecidomyiid*. The incisions (or bays) of the leaves were made deeper by a little bit being turned over; how this is accomplished I do not know. In the valuable Monograph of *Cecidomyiidae* at present in course of publication by the Abbé Kieffer in Ann. Soc. Ent. France, this is well figured (vol. lxi, pl. 38, fig. 12) as *Macrodiplosis volvens*, Kieff. It does not seem to have been noticed in Britain before. On the same trees certain of the leaves had their prominent parts turned over (the promontories of the leaf instead of the bays). I supposed this to be the work of the same insect, attacking a different part of the leaf, but Kieffer figures it (l. c., fig. 11) as *Macrodiplosis dryobia*, Lw., a species which is included in Mr. Verrall's Catalogue of *Diptera*.—ID. : October 6th, 1901.

Platyezæ at Felden, Herts.—While spending the last few days of September, which were remarkably brilliant and warm, at Felden, with my friend Mr. Albert Piffard, I was astonished at the number of *Platyezæ* we met with. *P. consobrina*, Zett., was somewhat common hovering at, and running in curvatures upon, the leaves of hazel at Black Horse Wood, Ashley Green. *P. rufa*, Mg., ♀, was in abundance, mixed with *P. modesta*, Zett., flying to, and running beneath as soon as alighted upon, the broad gills of a *Hebeloma*, which rots in five or six days, during which time the insects doubtless oviposit in it; but we found no males, and one is led to the supposition that the period of incubation is capable of expansion, or that the female is parthenogenetic. This fungus grew in several places on the old stumps of defunct trees; when *P. rufa* is stationary it stands high on its legs and looks much narrower than when set. Mr. Piffard took one or two female *P. dorsalis*, Mg., of which he had taken four examples of the extremely rare male on August 29th in the garden plantations on Portugal laurel, in which situations *P. hirticeps*, Ver., ♀ ♀, was somewhat common running in circles about the upper-sides of the leaves, both in dull and sunny weather. The bag ended with a single fine female *P. picta*, Mg., flying high to a hornbeam at Ashley Green, thus consisting of seven species (out of twelve in Britain) secured within a five miles' radius in three days. Mr. Piffard tells me he has upon previous occasions also taken one female *P. infumata*, Haliday, here, and in August *P. atra*, Mg., which latter is the only species with which I had previously met, having beaten a female from birch in Bentley Woods, near Ipswich, on April 28th, 1895, and from these dates there would appear to be two or a succession of broods. He has never met with *P. furcata*, Fall., at Felden.—CLAUDE MORLEY, Ipswich : October, 1901.

Ectopsocus Briggsi, McLach., at Lynmouth.—Last year I failed to take this species, but it is now appearing in somewhat greater numbers than in 1899. Beating trees or ivy does not answer so well as my original laborious plan of unrolling withered leaves, but I have found a method which promises success if I may judge from a first trial. On the gardener's pile of dead leaves, chiefly the large ones of sycamore, chestnut and horse chestnut, I place small boughs cut, leaves and all, from either of these trees; being cut green the leaves curl up and dry, but remain on the boughs, which I tap over an umbrella and replace for further use. As I believe Mr. Dale found the species nearly as late as Christmas, Neuropterists will be able to try the plan during the present season, I hope with success. *Ectopsocus* seems to prefer being near the ground, and is fairly active when disturbed. I find it best to unroll my dead leaves over an umbrella, for the creature usually either jumps off or gets through the holes in the leaves and falls. It may be easily recognised without a lens by its reddish lustre, and by its habit of holding its wings flatter over the back than is usual with *Psocidæ*.—C. A. BRIGGS, Rock House, Lynmouth, North Devon: October 12th, 1901.

Ectopsocus Briggsi, McLach., in South Devon and in Dorset.—An example of this pretty little Psocid, discovered originally by Mr. C. A. Briggs at Lynmouth, North Devon [cf. Ent. Mo. Mag. (2), x, p. 277], was found by the Rev. A. E. Eaton at Seaton, South Devon, on or about Christmas Day, 1900. Mr. Dale takes the insect, not uncommonly I believe, by beating ivy late in the year at Glanvilles Wootton, Dorset. I think both Mr. Briggs and Mr. Dale have found it in company with *Trichopsocus Dalii*, which it much resembles, but is considerably smaller.—R. McLACHLAN, Lewisham, London: October 4th, 1901.

Local Notes (Plectrocnemia geniculata, Holocentropus stagnalis, &c.).—I note the following amongst the Rev. A. E. Eaton's captures of *Trichoptera* in the south-west of England this year:—

Branscombe (Devon), *Diplectronea felix*, McL., May 4th. Dawlish (Devon), *Crunæcia irrorata*, Ct., *Plectrocnemia geniculata*, McL., *Wormaldia occipitalis*, Piet., July 23rd. Ashcott (Somerset), *Phryganea minor*, Ct., *Holocentropus stagnalis*, Alb., May 30th.

Of *Plectrocnemia brevis*, McL., introduced as new to Britain last year, he seems to have found but one example, in the old locality at Seaton.—ID.: October 13th, 1901.

Pachytylus cinerascens, Fab., near Hastings.—A good specimen was taken at Ore about the middle of August last. This is the second specimen which I have obtained in this neighbourhood; the first having been taken at Fairlight more than twenty years ago. A few years afterwards *P. migratorius*, L., was brought to me from the same parish. These two specimens are mentioned by Mr. Eland Shaw in Ent. Mo. Mag., vol. xxv, p. 451.—E. N. BLOOMFIELD, Guestling: October, 1901.

Decticus verrucivorus, L., near Deal.—A fine female specimen of this rare

species was brought to me by Mr. Gordon Murray, of Walmer. He took it at St. Margaret's Bay on July 20th last. A specimen is recorded from the same locality as having been taken in 1886 (Ent. Mo. Mag., vol. xxiii, p. 168), and others are mentioned by Mr. Burr in his "*British Orthoptera*."—ID.

New locality for Exæretopus formiceticola in Guernsey.—On August 22nd I found a number of specimens of a Coccid, at roots of grass under stones, on the cliffs near Pleinmont Point. I sent them to Mr. R. Newstead, who finds them to be *Exæretopus formiceticola*. This insect was first discovered near Bordeaux Harbour, close to a pebble beach, and described by Mr. Newstead in the Ent. Mo. Mag. for September, 1894. This locality has since been completely covered with pebbles from the beach. It is interesting to find it in a new spot eight miles distant from the place where it was originally found.—W. A. LUFF, Broad Road, Guernsey : October 12th, 1901.

Society.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :
August 8th, 1901.—H. S. FREMLIN, Esq., President, in the Chair.

Mr. R. Adkin exhibited a bred series of *Geometra papilionaria* from Bexley, Kent, and noted the sensitiveness of its colour, explaining his method of preservation, by stupifying with cyanide and killing with oxalic acid. Mr. Manger, a large light coloured *Sphinx ligustri* from Brockley, and a ♂ of the dragon fly, *Æschna cyanea*, taken in his garden at New Cross. Mr. Hy. J. Turner, a pupa of *Macroglossa stellatarum* from Bromley, showing the curious beak, and a short bred series of *Agrotis ripæ* from Dawlish, and referred to the marked difference in shape between the males and females. Mr. Step, *Cassida equestris*, bred from the larvæ exhibited at a previous meeting, stating that they pupated about July 25th, and emerged about July 31st. Mr. Fremlin, a number of gall-excrecences on the twigs of hornbeam, which had been produced by a species of *Aphis*. Mr. Edwards, a number of rose leaves disfigured by a carpenter bee ; a discussion took place as to the selection of leaves of particular shrubs, and the shapes of the pieces cut out ; Mr. Turner stated that they regularly burrowed in the soil in the *Cactus* pots in his greenhouse. Rev. H. Wood, two spiders, *Theridion lineatum*, females, with egg-cocoons ; the living specimen had killed the preserved one, and appropriated its egg-case, fixing them both together on the lid of the tin. Mr. Step read the Report of the Field Meeting held at Mickleham on June 22nd, which was attended by forty members.

August 22nd, 1901.—Mr. F. NOAD CLARKE, Vice-President, in the Chair.

Dr. Chapinan exhibited a larva of *Graellsia Isabellæ* from Spain, the only European species of the *Attacina* group of the *Saturniidae*, and pointed out the protective nature of its colour resemblance to the twigs of its food, Scotch fir. Mr. F. H. Day, local and rare *Coleoptera* from Carlisle, including *Donacia discolor* of all shades and variation ; *Hydrothassa hamoverana*, eighteen specimens by sweeping *Caltha palustris* ; *Bradycellus collaris* ; *Spharites glabratus*, one of two specimens

taken in carrion and very rare; *Telephorus abdominalis* found among bracken; *T. Darwinianus*; *Rhynchites cupreus* from mountain ash; and *Agabus arcticus*. Mr. Enock, a pair of *Orthetrum cancellatum* captured in cop. at Wisley on July 20th, the female was of the same blue colour as the male.

September 12th, 1901.—Mr. W. J. LUCAS, B.A., Vice-President, in the Chair.

Mr. South exhibited two old specimens of the buff variety of *Amphidasys betularia* type form, and a buff variety of var. *Doubledayaria*, which he had received from a correspondent. Dr. Chapman, a much suffused black var. of an *Argynnis* sp. from Spain, in shape it was *A. Aglaia*, but the under-side was marked like *A. Adippe*. Mr. Lucas, for Mr. H. E. Annett, a var. of *Enodia hyperanthus* from Oxshott, nearly approaching the extreme form var. *arete*; a male specimen of the large earwig, *Labidura riparia*, taken by Major Robertson at Pokesdown, August, 1900; and coloured drawings of (1) *Argynnis Paphia*, ♂, a pale yellow var., (2) *Epinephele tithonus*, ♀, a *xanthic* var., both from specimens taken in the New Forest. Mr. Kirkaldy, numerous species of *Miridæ* = *Capsidæ*, of the genera (1) *Orectodorus*, most of which are ant-mimics, and (2) *Resthenia*. Mr. West, of Greenwich, long series of three closely allied and obscure species of *Homoptera*, *Acocephalus brunneo-bifasciatus* and *A. flavo-striatus*, both from Catford, from roots of grass on waste land, and *A. albifrons*, from under furze bushes, Blackheath. Mr. Kemp, living nymphs of the *Odonata*, *Sympetrum striolatum*, *Gomphus vulgatissimus*, and *Calopteryx virgo*, all from the New Forest. A discussion ensued as to the area of distribution of the immigration of *Colias Hyale* and *C. Edusa* during the present year.—HY. J. TURNER, Hon. Sec.

FURTHER NOTES ON SOUTH AFRICAN LEPIDOPTERA.

BY FRANCES BARRETT; EDITED BY C. G. BARRETT, V.P.E.S.

(Continued from p. 195).

Pleretes bellatrix, Dalm.--"Harry brought the caterpillar home just about to turn to pupa. The colours of the moth are carried out in the caterpillar, and can be seen in the chrysalis. Its food plant is a bush with bunches of light scarlet blossoms. It sometimes climbs larger trees, and is called here honeysuckle; but it is not very much like a honeysuckle, the blossoms form a bunch, and are on a spike rather than a whorl. The leaves are dark and the flowers very bright, singularly agreeing with the colour of the moth."

[No figure of this larva has yet reached me, but the pupa is exceedingly pretty—brilliantly glossy orange-yellow, with a row of large black spots on each dorsal, and around each abdominal segment, a cluster of smaller spots at the back of the head and on the thorax, smaller ones upon the covers of the legs, and the wing covers broadly edged with black, and divided lengthwise with the same. All these markings, with the remaining surface, are, as I have already said, shining like glass, and no roughness nor sculpture is to be seen upon it. The cremaster is scarcely ex-

tended beyond the anal segment, but quite flat, yet furnished with a number of separate hooked bristles, by which it holds tightly to its cocoon. This is extremely thin and transparent, formed of loose white silk, through which the pupa is most distinctly visible.]

Leucaloe eugraphica, Walk.—“I found a pair in October in the shrubbery, and obtained a considerable number of eggs. The larvæ fed up on vine leaves, but as it lives usually out upon the veldt the vine can scarcely be its natural food. I have painted this larva in four stages; some specimens had a few long white hairs trailing back over the body. The moths emerged in February. On a previous occasion I brought home a caterpillar in February, and it spun up almost immediately, yet did not emerge till August—nearly six months.”

[From the last remark this species would appear to be double brooded. Its young larva is figured of a blackish-brown with a yellow dorsal line, and generally distributed rather short hairs. Its head at this and the subsequent stages is bright orange-red. When larger the colour is still very dark brown, with moderately broad dorsal and spiracular pale yellow stripes, the hairs arranged in large dorsal and lateral tufts, their colour bright red, mixed with black, and in the full grown larva supplemented by extremely long curved hairs on the posterior segments. The feet are black, and the ventral prolegs red. The pupa is dark red-brown, brilliantly glossy all over, and only sculptured in a very faint degree with minute wrinkling on the thorax and wing covers, and with minute pitting on the segments; anal segment bluntly and completely rounded, the only indication of a cremaster being a small tuft of short hooked bristles. In a loose soft cocoon of silk mixed with the hairs of the caterpillar, among leaves or rubbish.]

Diaphora capensis, Herr.-Sch.—“Its caterpillar is of a lovely glaucous-green, with white markings, and very short, erect, fine whitish hairs, the legs pale yellow or light brown—such a pretty delicate thing—I wish it had waited to be painted, but it spun up almost immediately, and produced this lovely favourite moth.”

[The moth may well be a favourite. It is an exquisite creature! The forewings pale green or greenish-buff with white stripes, a slender scarlet hind border, with a large spot of the same colour at the apex and the anal angle; the orbicular and reniform stigmata large, filled up with red and edged with black; above them is a black cloud along the costa. Hind-wings bright yellow with a large black central spot, and a hind border of black spots. Abdomen yellow. Thorax orange-black and white. The pupa skin enclosed is curious, the surface of the wing covers, as well as the dorsal and abdominal segments, thickly covered with close, fine pitting and roughnesses; the antenna covers finely barred with cross sculpture; the anal segment thick and extremely blunt; the cremaster showing only two small, distinct, upturned points; colour dark purple-red. In a thin silken cocoon in a folded leaf.]

Metarctia rufescens, Walk.—“The caterpillar is a rapid traveller. It is not uncommon among dead leaves and rubbish, or under a hedge. It will feed on a juicy creeper with ivy-shaped leaves growing in the garden, but I doubt whether this is its proper food, since it is usually found far away from this plant.”

[This moth is of about the size and colour of *Phragmatobia fuliginosa*, which

it rather resembles. The larva is remarkable for the inordinate length of its dorsal hairs, which slope backwards. Except for this it is rather like our common "woolly bear." When young the body is black-brown, with the hairs pale brown, but when full grown the dorsal hairs become black, those of the lower part of the body red; beneath the long hairs the segments are starred with rows of raised spots, from which spring tufts of very short radiating hairs; similar tufts with the bristles pointing downwards are placed at the sides of the prolegs. The head when full grown is shining chestnut-red, when younger orange-red, with two diverging black lines down the face. Pupa shining red-brown; in a loose open cocoon of silken threads.]

Braura ligniclus, Walk.—"We have found the moth sitting under verandah thatch, on stone, on outbuildings, and on rough wood, which it closely resembles. One caterpillar was found under an old sack which had been laid for the horses to feed on, so that the mealies should not be mixed up with dust and gravel. The wonder was that the fowls had not spied it! Another was under some loose gum-tree bark which was pulled off for firing; and it spun up at once under its piece of bark. I do not know upon what it feeds, as both were ready to spin. A third was found in a bit of old "cotton-blanket," such as the red-clay people wear, stuck away in a thorn bush in the shrubbery. When this was pulled out to be burned the cocoon was found in its folds."

[This is a fine moth, allied to *Gastropacha*, and having a beautiful resemblance to brown bark. The larva figured is large and handsome, blackish-brown with a broad whitish dorsal stripe extending to the subdorsal region and enclosing a dorsal row of red spots, but all somewhat concealed by abundant tufts of moderately long black and brown hairs; head pale grey-brown. Pupa long-ovate, the limb-covers very compact, and, with the wing-covers, dull from a frosting of abundant minute sculpture of roughnesses without definite form; antenna-covers short, beautifully cross-ribbed; these portions all dull chocolate; dorsal and abdominal segments pitchy-brown, rather glossy, but finely sculptured with minute pitting and cross wrinkling; anal segment rounded off, the cremaster not protruding, but covered with a thick stubble of fine bristles. In a tough and strong, but not thick, cocoon of a dark grey-brown colour, attached to bark or some other thick object.]

Lenodora montana, Stoll.—"Reared from a caterpillar which I found on a sunny morning at Nggeleni. I found two, attracted to them by beautiful coral-red spots along the body, which on close inspection I found were parasites; however, I tried to rear them, and one fed up on wild *Pelargonium*, cast its skin and parasites, and became a fine caterpillar. It was quite a pet of mine with its little bright face! Another was found on the same food in the side garden."

[This is a robust species, though not more than an inch and a half in expanse of wings; these being short, broad, and rounded, black-brown, with a great semi-transparent white blotch occupying the middle portion of each; the body densely covered with long scales, and having a very long anal tuft. The head of the larva is glossy black, except a sharply white triangle occupying the space between the lobes, and a yellow mouth; the dorsal portion of the body is black, and abundantly furnished with tufts of long black and white hairs spreading abroad and more par-

ticularly sloping back ; all the body below the subdorsal region orange-red, and covered with tufts of similar and darker hairs ; legs and prolegs grey-black. Pupa dark red ; the limb-covers compact ; the antenna-covers much thickened and conspicuous, but only very faintly cross-banded ; wing-covers rather dull, covered with minute cross-wrinkling, and showing the nervures in regular depressed lines ; dorsal and abdominal segments only moderately glossy, covered with sculpture of shallow pitting and wrinkles, but having a raised smooth band at the back of each ; anal segment very fully rounded, the cremaster only indicated by a mass of fine, short, erect bristles covering the extremity. Cocoon thin, but extremely tough, whitish-brown, spun up among dead leaves or grass.]

Trabala ochroleuca, Feld.—“ This is a moth that I have several times tried to rear—singly. Did I not send you a dead larva ? Spencer brought me the first, and found out its food ; then seeing that I was interested brought me several more. Then we hunted together and found a fair number. They had been casting their skins, for we found several of these on plants on the ground. I do not think that I ever caught the moth ; it is a handsome creamy-looking creature. I am sending a little sketch of the larva.”

[This is a very softly beautiful species, not unlike *Odonestis potatoria* in both sexes, though the male is of the pale creamy yellow-brown of the female, and beautifully rippled with a deeper shade. The larva is very handsome, pale ochreous-brown or orange-brown ; the dorsal portion covered with thick tufts of soft silky white or yellow-white hairs, which lie back and up toward the dorsal ridge ; the sides ornamented with tufts of much longer white hairs, depressed and lying closely together in silky masses, except on the thoracic segments, where they are more raised, longer, and stand out in all directions ; head rounded, grey ; second segment barred with a chocolate line, third and fourth most conspicuously with broad blotched chocolate bands, and a smaller similar bar crosses the back of the anal extremity. The pupa is very thick, almost ovate, the limb-covers smooth and compact, glossy ; the antenna-covers also glossy, faintly cross-ribbed ; wing-covers dull, with abundant cross-wrinkles, which are thickly sculptured with minute roughnesses : the nervures visible, rather raised ; segments glossy, the dorsal much dotted with minute pitting, the abdominal thinly furnished with fine prostrate short hairs, which are scattered generally and not placed in tufts. Whole surface light chestnut-red, except the anal segment which is darker, very bluntly rounded, showing hardly any sign of a cremaster, but furnished with short hooked bristles in a broad mass. Cocoon tough, composed of loose whitey-brown silk, and not very opaque ; spun up among leaves or rubbish.]

Phyllalia concolor, Walk.—“ These moths were, most of them, found dead along the road to Nggeni. It was very curious ; there had been a sharp wind, and as we came driving over a hill-top Edward said, ‘ There is one of those moths. ’ I jumped out and picked it up, dead, from the middle of the road ; then we spied another ; then we looked about sharply, and saw them in the thin trodden grass, or more often on the footpath along the side of the road. One which I found in the grass was alive but sluggish. We only found them on one side of a long hill, though we looked carefully. We have also found larvæ, and I have reared two and send them with their cocoons, and some dead and dried caterpillars.”

[Of the moths found dead some are in quite good condition! This is a *Lasiocampid*, larger than our *Lasiocampa quercus*, wholly of a shining light red-dish-brown. The curious shrunken dried up larvæ have the head shining orange-brown, with the face paler; and the body red-brown, densely covered with hair of the same colour, that of the lateral and abdominal regions short, but that of the back very long, thick, and sloping a little backwards. The pupa, like that of the last species, is thick and almost ovate, the limb-covers very closely and evenly packed, the antenna-covers short, evenly and regularly barred with the pectinations; covers of the wings minutely granulated and sculptured with fine irregular cross-lines; the segments scarcely roughened, but strongly ridged at the edges; the anal segment completely rounded behind and roughened with a broad area of minute prominences; this portion is nearly black, the general colour dark purple-brown. The cocoon soft, but thick and densely lined with the long hairs of the larva. Spun up at the surface of the ground, and thickly covered with morsels of earth or other *débris*.]

Chilena fumosa, Hampson, n. sp.—“The caterpillar was very curious, with long spikes of hairs shooting out among shorter hairs; a handsome creature with long red stripes extending down the back, and along each side from the head to the anal prolegs; feeding on *Mimosa*. We only obtained the moth at lighted windows.”

[No figure of this larva has reached me; but a number of cocoons with empty pupa skins. The pupa is rather cylindrical, the anal segment but little smaller than the rest, and very bluntly rounded, smooth and devoid alike of cremaster and bristles; the general surface is rather dull from excessively minute granulations rather than any sculpture; rich purplish-red. The cocoon narrow, fusiform, but with the ends blunt, dirty white, and almost of the texture of tough paper. The eggs barrel-shaped, laid in clusters or strings on the leaflets and leaf stalks of *Mimosa*.]

Chilena prompta, Walk.—“The larva was found on *Mimosa* bushes, and fed up on the same. I send a sketch of it. The moth comes occasionally to light at a window in wet weather.”

[The larva as figured is of very striking appearance. The head grey-black, the dorsal region olive-brown, with abundant short tufts of brown and white hairs; the ventral region grey-black, with the short hairs yellowish-white; but the striking features are the long tufts, one on each side of the head, long, slender, black, tipped with white, curved, and resembling a pair of antennæ; on the thoracic segments two more pairs, thicker and hardly so long, black with white tips, diverging and surrounded with thick tufts of white hairs; just beyond these a pair of white tufts long and oblique; on the ninth segment another pair; and on the anal segment a long, black, central, oblique tuft, tipped with white, and surrounded by several short tufts; spiracles brilliantly white. It was found necessary to draw this larva on coloured paper, or the white, which is so conspicuous in it, would not have been brought out. The pupa is very similar to that of the last species; not quite so cylindrical, its surface more silky, and showing faint traces of powdery dusting; the anal segment equally round and devoid of structure; the general surface similarly without sculpture; but the edges of the segments more ridged. The cocoon whitey-brown, of the same tough papery consistence, but with a little external loose silk; attached to a twig of *Mimosa*.]

Odontocheilopteryx sobria, Walk.—“We scarcely ever see this species out of doors, but it comes to the windows on damp nights. Edward found a large cluster of insignificant looking, rather hairy, whitish caterpillars on the under-side of the trunk of a bending tree in the shrubbery. He called me and I secured them—such a host—I had to put them into three cardboard boxes; they fed on *Mimosa*, but soon spun up, some on the *Mimosa* either singly or clustered together, others on the box. The moths emerged two or three at a time, and would hide themselves so cleverly that it was difficult to see them, and they would often get overlooked; then they would bang themselves about in the box and soon knock their scales off. To get any of them nearly perfect I am obliged to examine the boxes several times a day; indeed, I have watched carefully, and think that they must begin to beat about very soon after emerging from the pupa. I do not understand why the moths come out so small, for the caterpillars have been plentiful and rather finer this year.”

[This is indeed a restless species; it is not naturally very thickly clothed with scales, but almost every male bears some traces of its knocking about, and some are reduced to mere shadows, the wings nothing but membrane. The females are a little better. The moth evidently is small in proportion to its larva—those taken at the windows do not seem to be larger than those reared! The larva, which it has been necessary to draw on coloured paper, seems to be light brown, but almost entirely covered with tufts of white hairs of moderate length, mixed with some tufts of more obscure brown and grey; on the second, fifth and anal segments are more erect and rather longer loose tufts of more distinctly brown hairs, and longer white tufts lie prostrate both in front and behind; indeed, there is a tendency to the prostrate form of lateral tufts so well known in the genus *Gastropacha*. The pupa very closely resembles those of the two species of *Chilena* just described; cylindrical, the anal segment very fully rounded and without structure; the surface dull, rather as though shagreened, purple-brown, more red-brown behind. Cocoon almost cylindrical, dirty white, very tough, and when cut open very closely resembling, in structure and strength, and also in the silky inner surface, the inside of a dried kidney-bean pod].

Taragama polydora, Feld.—“The larva was found upon black wattle, an introduced Australian tree; we have been unable to meet with it again, and there was not time to figure it; the moth appears to be rare.”

[The pupa is very much rounded in front and also behind; the limb-covers flattened and closely packed; the antenna covers very broad for half their length, then suddenly narrow, finely sculptured with the cross markings of the pectinations; wing covers dull from minute granulations; all these portions purple-brown; dorsal segments dark red-brown, coarsely pitted; abdominal segments shining, red-brown, very finely and sparingly clothed with minute hairs; anal segment rounded and more thickly sprinkled with fine bristles. The cocoon is rather large and tough, of irregular form and thin texture, fixed to twigs by a slight exterior webbing of thin silk. This pretty graceful Lasiocampid belongs to the slender group of which the beautiful Spanish *Megasoma repanda* is the only European exponent. It is somewhat allied to *Gastropacha*].

(To be continued).

DESCRIPTION OF A NEW ICHNEUMONID.

BY T. A. MARSHALL, F.E.S.

A rather large black Ichneumonid with long ovipositor, taken in the Forest of Monte d'Oro, Corsica, by Col. Yerbury in 1893, has been for some years in Mr. Bignell's collection. It is worthy of special notice as a new form, remarkable for the incrassation of the front tibiæ, a character not entirely unknown in the group of *Xorides*, or even in that of *Cryptus*, but nowhere developed to the same extent as in the present instance, so far as I am aware. It belongs to Förster's genus *Nyxeophilus*, placed by that author among his *Cryptoidæ*, but wanting several of the characters necessary to maintain it in that situation. It is now better arranged by Ashmead in his tribe *Xoridini*, and in close proximity to *Echthrus*, with which it has a nearer connection than with the *Cryptus*-group. As the genus has received no further illustration than the synoptical indications of Förster and Ashmead, and is probably quite unknown, it may be useful to add such characters as may conduce to its more easy identification in future. The specimen is now before me, kindly lent by Mr. Bignell, to whom I had expressed my desire to bring it forward at the forthcoming scientific conference at Ajaccio, Sept. 8—14.

Genus NYXEOPHILUS.

Förster, Synops. der Fam. u. Gatt. d. Ichn., p. 187.

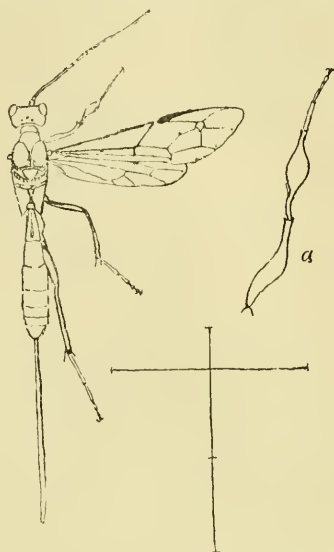
Ashmead, Classif. of the Ichn.-Flies, p. 60.

♀. Head transversely subquadrate above, somewhat buccate posteriorly, as broad as the thorax. Clypeus very small, remote from the mandibles, and not closing the mouth. Antennæ slender, filiform, rather longer than head and thorax. Parapsidal furrows deep, ending in a fovea before reaching the scutellum. *Metathorax with a small triangular areola superomedia, narrowly connected with a larger subcircular posteromedia. An abbreviated carina on either side, just above the spiracle, reaches neither the base nor the apex. Spiracles subcircular. Only one transverse carina, circular, and near the apex, separates the disc of the metathorax from the posterior declivity, which is very small. Areolet large, pentagonal (as in *Echthrus* and many *Cryptids*); præbrachial cell a little longer than the pabrachial; dividing nervure between 1st cubital cell and 1st discoidal commenced in form of a stump; pabrachial transverse nervure of hind-wing broken above the middle. Fore-legs short, their femora bent, compressed, and incrassated, attenuated towards the apex; tibiæ about half as long as the tarsi, attenuated near the base, with a conspicuous pyriform intumescence occupying more than the apical half; 1st joint of

* Micro-Anatomy teaches that the so-called metathorax is in reality the first segment of the abdomen, and that its name should be changed accordingly. The change, however, would prove so highly inconvenient, throwing out of gear so many thousands of existing descriptions, that any one may well hesitate to adopt it. It will be better to retain the old word, to be read with a silent consciousness that it does not mean what it says.—T. A. M.

tarsi elongate, linear, straight; 2nd—4th short; 5th still shorter; claws minute, incrassated at the base, without pectination, somewhat bristly at the base. Four posterior legs normal. Spurs 2, 2, 2, those of the fore tibiæ very short. Abdomen subsessile, longer than the thorax; segment 1 with a broad shallow channel throughout its length; spiracles placed, as in *Cryptus*, behind the middle. Terebra somewhat shorter than the body, its valves broad, flattened. Male unknown. For the sake of brevity I omit some generalities as to form and *facies*, which will easily be estimated from the figure.

The above description was written before I had examined Mr. Ashmead's work. Upon comparing it subsequently with his description of *Nyxophilus*, some slight discrepancies appear, but not I think sufficient to necessitate the formation of another new genus. The *Nyxophilus* of Ashmead, founded, I presume, upon American types, has a second transverse carina on the metathorax, and the spiracles oval; while the spiracles of the 1st abdominal segment are placed "at or a little before" the middle. Förster is silent about these characters. The old genera before Förster were, as is well known, vastly too comprehensive and indefinite; those of modern date often present the contrary defect of being too exclusive. It frequently happens that a new species, respecting the natural affinities of which there could be no doubt, cannot, for want of certain technical characters, enter any of the artificial genera which crowd the subject. The readiest way out of this difficulty is to make another new genus, of course with only one species; and so the evil goes on increasing *ad infinitum*.



NYXOPHILUS CORSICUS, *n. sp.*

Entirely black, except the fore legs, which are yellowish-brown, darker towards the base and apex. Antennæ with a white ring. Wings glaucous; nervures dark brown; stigma narrowly lanceolate, elongate, blackish, with a minute whitish dot at the base. Body hardly shining. Metathorax and hind coxæ coriaceous, dull.

Length, 7.5 lines; terebra, 6; exp. of wings, 13 lines.

I have no information of the history of this insect, nor of the circumstances of its capture in this island. It has not been met with a second time. The scarcity of *Ichneumonidæ* and *Braconidæ* in

Corsica has often forced itself on my attention, and remains unaccountable, considering the great abundance of other insects. The rôle of these parasites seems to be transferred in a great measure to the *Diptera* (*Tachinidæ*), which show themselves everywhere in unusual numbers.

Villa della Croce, Ajaccio :

August 27th, 1901.

FURTHER NOTES ON THE GENUS *HETEROMYZA*, FLN.

BY J. E. COLLIN, F.E.S.

Herr P. L. Czerny of Badhall, Ober-Österreich, informs me in a recent letter that he has seen the type of Zetterstedt's *Anthomyza rotundicornis*, which, though a true *Heteromyza*, is not the same as my species of that name (Ent. Mo. Mag., 1901, p. 110); he states that it has the face very narrow, being even narrower than in my figure of *H. atricornis*, in which character it agrees with the two British males I described, but he does not say if the front facets of the eyes are dilated in Zetterstedt's species.

Zetterstedt's *A. rotundicornis* is therefore more probably my *H. atricornis*, and his description bears this out, for though he says, "*Frons * * tota fulva*," a line before he says, "*Orbitæ angustæ, albæ*," and his remark, "*Epistoma * * nec infra oculos descendens; sub antennis angustissimum*," applies better to *H. atricornis* than to my second species.

Meade's *P. rotundicornis* was described from specimens in Dale's collection, and specimens sent by Dale to Verrall were the same as my *H. rotundicornis*, which stood in the Verrall collection under the name *H. atricornis*, Mg.

I cannot accept the name *filiformis*, Dsv., for my species, as one of Desvoidy's characters for his genus *Thelida* (type *filiformis*) was the narrowed face, and therefore his species was more probably *H. atricornis*. I very much doubt now if either of Macquart's species, *H. cinerella* and *H. scutellata*, belong to this genus at all, as probably one of them represents *Tephrochlamys rufiventris*, a species which he must have known, and at any rate his *H. cinerella*, described as "*Semblable à l'atricornis. Abdomen d'un noir un peu grisâtre; bord postérieur des segmens et anus fauves ♂ ♀*," can hardly be my *H. rotundicornis*. It appears to me therefore that a new name is necessary for the species which I have called *H. rotundicornis*, and which has

probably always been confounded with *H. oculata*, Fln., and I therefore give it the name *H. commixta*. The synonymy of the three species would therefore now read as follows:—

ATRICORNIS, *Mg., Mcq., Lw., Girsch.,*
Strobl, Coll.

filiformis, Dsv.

vespertilionea, Dsv.

rotundicornis, Ztt.

Delarouzei, Big.

occulata, Schin.

diversa, Rnd.

COMMIXTA, *nov. nom.*

? *cinerella, Mcq.*

oculata, Hal., Mde.

rotundicornis, Mde., Coll. (ol.).

atricornis, Terr.

OCULATA, *Fln., Mg., Mcq., Ztt., Coll.*

? *scutellata, Mcq., Mg.*

magnicornis, Lw.

Sussex Lodge, Newmarket:

October 26th, 1901.

RE-DISCOVERY OF *AGRYPNETES CRASSICORNIS*, McLACH.

BY ROBERT McLACHLAN, F.R.S., &c.

With reference to my notes at *ante* p. 270, I have this day received from Prof. Sahlberg a *female* of *A. crassicornis*, with the information that one was taken near Helsingfors last summer by Herr Weurlandes, a student in the Museum there, and that on searching over the insects placed in the Museum as *Agrypnia Pagetana* two further females were found (one of which is presented to me), which, in their unexpanded condition, had been overlooked by myself, and by those who examined the collection in Finland. The resemblance is very considerable, and the antennæ are much finer than in the ♂. It has the same short thick palpi as in the ♂, and the middle legs are more dilated than in that sex. The apex of the abdomen is different. A full account with figures will be published in Finland.

Lewisham, London:

November 12th, 1901.

NOTE ON THE GENUS *LECANIODIASPIS*, TARG.

BY E. ERNEST GREEN, F.E.S., GOVERNMENT ENTOMOLOGIST, CEYLON.

Lecanodiaspis, Signoret, "Essai sur les Cochenilles," p. 173, pl. vii, fig. 6.

Prosopophora, Douglas, Ent. Mo. Mag., 2nd ser., vol. iii, August, 1892, p. 207, pl. iii, fig. 1.

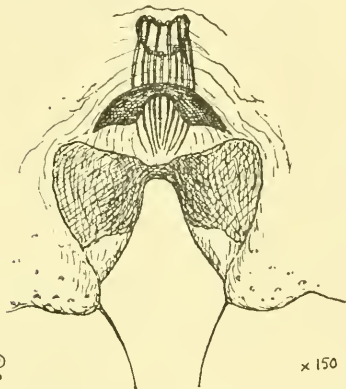
I have been unable to consult the original description of the genus, as defined by Targioni-Tozzetti. It will be noted that Signoret

omits the first "i" in his notes of the genus. Subsequent writers have agreed to correct this spelling, in accordance with its derivation from the name *Lecanium*.

Prof. Cockerell appears to have been the first to recognise the old genus *Lecaniodiaspis* in Mr. Douglas's later genus *Prosopophora*.

LECANIODIASPIS (PROSOPOPHORA) DENDROBII, Douglas.

Having occasion to examine specimens of this insect (apparently part of the original material from Demerara, from Mr. Newstead's



collection), I find that the five pairs of perforated discs are situated on the dorsum, not on the under-surface, as described by Mr. Douglas. In none of my examples have I been able to find the anterior triangular series of similar discs mentioned in the original description. The marginal blunt spines are three (sometimes four) on each side; the first and second corresponding in position to the stigmatic

spines of *Lecanium*; the third almost midway between them. When a fourth is present, it is a reduplication of the first. The chitinous arch above the anal ring is not quite accurately figured or described. It is not an even band, but is deeply emarginate on its posterior edge, and there is a dense chitinous plate on the inner margin of each anal lobe (see figure), the two plates meeting and becoming confluent above the anal cleft.

BIRCHIPPIA, Green, Ann. and Mag. of Nat. Hist., ser. 7, vol. vi, November, 1900, p. 450.

Prof. Cockerell has kindly drawn my attention to the fact that this genus is distinctly Lecaniodiaspid. Comparison with *Lecaniodiaspis dendrobii* and other allied species makes it quite certain that this is so; in fact, I can now see no good generic difference between *Birchippia* and *Lecaniodiaspis* itself. The structure of the anal ring, the blunt lateral spines, the peculiar form of the spinnerets and ducts, are all typical. The perforated discs on the dorsum, though small and inconspicuous in *Birchippia*, can be located. Under these circumstances I am of opinion that the genus *Birchippia* should be considered a synonym of *Lecaniodiaspis*. The species will apparently remain good. The smooth test, without polygonal depressions or

markings, distinguishes it from other described species. The name *anomala* (given under a misapprehension of the systematic position of the insect) is certainly inappropriate. There is nothing really anomalous about the species; but having been once applied, the laws of zoological nomenclature necessitate its retention.

Peradeniya, Ceylon :

October 4th, 1901.

THE TWO METHODS OF DETERMINING DIPTERA.

BY C. R. OSTEN SACKEN.

For the purpose of recognising a Dipteran (and perhaps most other Insects) in one, or more descriptions, two different methods may be used, one of which may be called the *method of comparison*, and the other the *method of visualization*.

The *method of comparison* is the ordinary one, when the specimen to be determined is held up, and compared in every detail with the description. In using this method, one is often bewildered by discrepancies, especially when the description is long. The *method of visualization* consists in examining the specimen first, and impressing its principal features upon one's memory, so as to be capable of *visualizing* it in its absence. The next step is to read the description (or descriptions when there are several), and, while doing it, to build up the described insect in one's imagination. Thus a mental image is produced in which the species to be determined can easily be recognised, even in the absence of the specimen. After having thus selected a description apparently answering the specimen to be determined, the description is read for a second time with the specimen in hand; and this second reading enables one to decide whether the discrepancies are important, or not, and, in the latter case, to accept the identification.

The method of visualization is quicker and surer than the other, and, with it, I have sometimes succeeded in deciphering Walker's sometimes long, but unmeaning descriptions. In the following instance the advantage of the method of visualization was unmistakably proved.

Loew had prepared a preliminary list of American *Dasypogonina*, in which the species known to him were distributed among his new genera. Some of Walker's and other unrecognisable specific descriptions were enumerated in this list under the heading *Dasypogon* (in the widest sense). Loew challenged what he called my perspi-

cacity ("ihren Scharfsinn"), in unravelling some of Walker's species of the latter group. I find my identifications (which Loew accepted) enumerated in a letter of mine of October 9th, 1874, of which I reproduce the corresponding passage: "The species of *Dasyopogon* which you left to my perspicacity to determine I have subjected to a critical scrutiny. *Dasyop. rufescens*, Macq., is very probably *Diognites discolor*, Lw.; Macquart has overlooked the spurs of the front tibiae. *D. Falto*, Walk., is *Cyrtopogon chrysopogon*, Loew; in Walker's description you must read *face* for *front*. *D. Macerinus*, Wk., wretchedly described, seems to be your *Anisopogon gibbus*. Finally, *D. Lutatius*, Wk., is the species which, in my last invoice, I sent you under No. 458, &c. This last species is introduced into my Catalogue of 1878, p. 69, as *Cyrtopogon Lutatius*, Walk.; the other species will be found in their places as probable synonyms of Loew's corresponding species."

The faculty of visualization is quite indispensable for a responsible entomologist to possess, and it would be expedient, I think, to examine aspirants for appointments in Museums in regard to it, just as candidates for railway-service are examined for colour-vision.

Heidelberg: September 19th, 1901.

MOSQUITO SWARMS RESPONSIVE TO SOUNDS.

BY C. R. OSTEN SACKEN.

A communication from Jamaica, published in "Nature," October 17th, p. 607, about mosquitos being "responsive to certain sounds, such as a continuous whoop or hum," reminds me of a somewhat similar communication which I received from a naturalist in Cuba during my visit there in 1858.

While standing in the midst of a swarm of mosquitos, and listening to the sound of some musical instrument in the vicinity, it has been noticed that each time when the note A (*la*) resounds, the swarm is pervaded by a tremor which the listener remarks through a number of mosquitos coming in simultaneous and momentary contact with his head.

Although I have not had occasion to verify this observation myself, I published a short notice of it in the "Stettiner Entomologische Zeitung," 1861, p. 52, under the heading, "Mückenschwärme und Musik."

Heidelberg, Germany:
November 2nd, 1901.

Papilio Machaon, L., taken in Hampshire.—In the July number (*ante*, p. 172) of this Magazine I reported having taken on May 25th last a specimen of this butterfly in my garden, and expressed an opinion it might have been an escape or intentionally turned out. From enquiries since made, I find a gentleman did turn some out a few days previously in his garden, which is about a mile distant, so most probably my specimen came from there, the weather being very fine and direction of wind favourable at the time. I am further informed this was not done with any idea of introducing *P. Machaon* into the district, but for the pleasure of seeing this fine butterfly on the wing.—FRED. C. ADAMS, Fern Cottage, Lyndhurst: *November*, 1901.

Larvæ of Sphinx convolvuli on Holy Island, Northumberland.—A full grown larva of *Sphinx convolvuli* was found on August 7th, 1901, on Holy Island (off the coast of Northumberland, between Bamburgh and Berwick-upon-Tweed). When taken, it was crawling across a road which separated a potato field, where much *Convolvulus* was growing, from a garden in which there was a profusion of the large white *Convolvulus*. I showed it to a man who has for years collected on the Island, where he has always lived, and he assured me he had never met with it there before. The specimen I obtained was in beautiful condition; I sent it for identification to Dr. Sharp, F.R.S., at Cambridge, who then forwarded it to Dr. T. A. Chapman, at Reigate; unfortunately the creature was damaged on its travels, and, as it began to pupate, it became useless as a specimen. However, I had previously taken the following description of it:—In length it measured 4 inches, and was broad in proportion, its diameter being about $\frac{3}{4}$ of an inch. It was the same bright "sage" green on the dorsal as well as on the ventral surfaces, marked laterally with oblique black stripes; the spiracles were rendered very conspicuous by being situated each in the centre of a black spot; the legs, too, were quite black and glossy. The surface of the body was uniformly smooth, but the skin was dull, and not polished; the segments of the body were well defined, the ringings being deep and distinct, with numerous intermediate rings, which, however, were incomplete on the ventral surface. The larva was almost of uniform girth, but tapered slightly at the anterior end, the head itself being small and green, with black stripes vertically; the last segment was also somewhat reduced. The last segment but one carried a long powerful horn or spike, pointed at the tip and strongly curved backwards over the anal flap; this horn, in striking contrast to the green of the body, was of a bright orange-red colour, tipped with black. The "*tout ensemble*" was very handsome.

On September 30th another specimen was found on the Island, but as I had left by then it was sent to Cambridge. This individual was in the pupal state, and was found in the soil. It was $2\frac{3}{4}$ inches in length, and very broad at the anterior end, but tapering very considerably posteriorly. Its colour was bright brown, rather dark except on the wing-covers, which were of a much lighter shade; these covers reach along two-thirds of total length of the body. The proboscis was dark, and about an inch long, almost half its length being recurved and bent on itself against the ventral surface of the thorax; it ended in a blunt rounded knob. The curious and highly characteristic arrangement of notches was plainly visible on the sides of those segments of the abdomen which are situated in such a position that they become subjected to great strain of curvature when the pupa indulges in its very

active wriggling movements. These lateral notches prevent the pupa from rupture by bending too far on one side—the notch acts as a sort of restraining cog by catching against the segment immediately in front of it. They are situated in front of the spiracles, and are formed of hard concentric ridges, shelving out one above the other; this constitutes a sort of lip or brow against which the contiguous segment catches firmly. As far as I can ascertain it is a purely mechanical structure, which admirably meets the requirements of the case.—ALICE L. EMBLETON, Balfour Laboratory, Cambridge: *October 22nd, 1901.*

Larvæ of Sphinx convolvuli in Scotland.—Caterpillars of the Convolvulus Hawk-Moth have this year been found in two localities in Scotland, namely, at Kirklebride in Kirkeudbrightshire, whence Mr. R. Service, of Dumfries, had three on August 21st, and at Dunbar in East Lothian, where two were got (one of them by myself) on September 10th and 11th, as fully recorded in "Annals Scot. Nat. Hist." for October, pp. 238 and 239. The moths themselves have been obtained in various parts of the country, specimens from the counties of Elgin, East Lothian, Midlothian and Kirkeudbright having come under my notice. Larvæ of the Death's Head Hawk-Moth (*A. Atropos*) seem also to have been more in evidence than usual; I have had four from near Dunbar and one from Dumfries, and have heard of others.—WILLIAM EVANS, 38, Morningside Park, Edinburgh: *Nov. 7th, 1901.*

Sphinx convolvuli in the Isle of Wight.—It may interest your readers to know of the captures of *S. convolvuli* here in a short space of time. Single specimens turned up during September in verandahs, summerhouses, &c.; and at the close of the month I heard that the insect visited tobacco plants (*Nicotiana affinis*) in gardens at Bembridge in some quantity, and so watched a border of flowers here—tobacco plants, petunias, *Phlox Drummondii*, &c. The result was as follows:—September 27th, saw 3, took 2; 28th, 2—1; 30th, 2—2; October 1st, 3—2; 2nd, 4—3; 3rd, 3—1; 4th, 2—1; 5th, 2—2; 7th, 1—0. After October 7th the weather became cold and wet, and it was no use looking for the insect; they came just at dusk, and were a beautiful sight. I saw three at one time on October 2nd, and in a garden at Bembridge eight were said to have been seen at once. Those which I took were mostly fair, and some of them very good specimens; the females were slightly more abundant than the males. Had I begun to look after them earlier I could probably have taken many more had I wished to do so, since, as I said, the moth had been out for some time. Some others were seen and taken in a garden near that in which I took my fourteen specimens at much the same time.—C. W. FOX, Heathlands, Sandown, Isle of Wight: *November 4th, 1901.*

Sphinx convolvuli in North Devon.—This insect has been uncommon here this year as in 1898. It was interesting to hold a flower of the white tobacco in one's hand and see two moths actually fight for access to it! (*cf.* Ent. Mo. Mag., Dec., 1898, p. 278).—G. B. LONGSTAFF, Twicken, Mortehoe, R.S.O.: *October 6th, 1901.*

Sphinx convolvuli at Folkestone.—About the last week in August I had a large chrysalis handed to me which I took to be *Acherontia Atropos*. I put it in moss and placed it in a warm position on the kitchen mantelpiece, keeping it carefully damped. On September 20th the moth emerged, and proved to be *S. convolvuli*.

I was under the impression that this moth did not breed in England, never having heard of an instance. The chrysalis was found in a heap of mould in a garden, and there was plenty of bindweed about. I have heard of two other instances of pupæ being found in this neighbourhood.—W. G. JUDGE, 13, East Cliffe Gardens, Folkestone: *November 4th*, 1901.

[It is unusual for the larvæ or pupæ of *S. convolvuli* to be found in this country; but such occurrences have been many times recorded. Probably never before in such numbers as in 1901. Yet the *parents* of these larvæ did not place themselves *en evidence*.—EDS.]

Tolucella zonaria on a Channel boat.—A specimen of this fly was taken at the end of last June by Mr. Horace Darwin as it was buzzing about on the boat between Calais and Dover. He has presented it to the University Museum of Zoology.—F. JENKINSON, 10, Brookside, Cambridge: *October 16th*, 1901.

Syrphidæ at Cambridge in 1901.—In my garden here (80 by 20 feet) upwards of 42 species of *Syrphidæ* have occurred to myself or my housekeeper, Miss A. Allard, who has proved herself to be a clever collector. I will only mention *Paragus tibialis*, *Cnemodon*, what seems to be *Orthoneura brevicornis* (one on October 10th), *Didea fasciata* (one on September 26th), *S. tricinetus* (one on August 11th), *cinotus*; *X. ornatum* (two), *M. equestris* (about a dozen), *Chrys. cautum* and *C. festivum*.—ID.

Pachygaster Leachi, &c., at Cambridge.—*P. Leachi* was common in my garden through July; the last I saw was on August 8th. It frequents the under-sides of leaves. Miss Allard found it equally common at Newlyn, Paul, Mousehole, and Scilly. Of *P. ater* she took a single specimen in my garden on July 17th. At Lyndhurst I took a single male of *P. meromelas* about July 3rd.—ID.

The gender of Pachygaster, &c.—Mr. Austen says (*ante* p. 241) "since *gaster* is feminine, we must of course write *Pachygaster meromelæna*," &c., and in a letter I received from him he says, "It is a well known rule of zoological nomenclature that in the case of a genus, the name of which is compounded of an adjective and a substantive, the specific name, if an adjective, shall agree in gender with the substantive." I accept his statement, but I am very sorry to hear it. The "rule," besides being entirely illogical, is a violation of Greek usage. *Pachygaster* is an adjective, and can only correctly be made feminine by understanding a feminine substantive, such as *musca* or *myia*. Its gender cannot be affected by the gender of *gaster*.* With such words as *Cnemodon*, *Merodon*, and *meromelas* before me, it may seem inconsistent to object to any barbarism. But no one, as far as I know, would defend them as correct, any more than hippopotamus, "from hippos, a river, and potamus, 'orse," as the showman said.—ID.

Idia lunata at Cambridge, and elsewhere.—I have secured five specimens this year. I took one female at Hindon, near Salisbury, on August 30th. Males occurred at Lyndhurst, June 26th; Paul, July 26th (Miss Allard); Cambridge,

* Mr. McLachlan has referred me to Ent. Mo. Mag., v, pp. 236, 237, where this point was dealt with clearly and conclusively by the Rev. T. A. Marshall so long ago as 1869.

September 15th; Cambridge, September 25th (Miss Haynes). Nearly all were on flowers of *Compositæ*; they sit with the wings overlapping, and so have a pointed look behind. It is an odd looking insect.—ID.

Trigonometopus frontalis near *Newbury*.—I found this species fairly common among sedge, &c., at West Woodhay, in April and September. Whether it is an autumn species that hibernates I do not know. [Since this was written I notice (*Ent. Mo. Mag.*, xxxii, p. 212) that Mr. Morley took the insect at Ipswich in September and March].—ID.

Acletoxenus syrphoides, *Frauenf.*, at *Cambridge*.—On July 14th five specimens occurred in my garden of a very lovely fly, which I could not find in Walker's *Diptera*. The first was noticed by my housekeeper, who called me to catch it; the others were taken by myself and by my parlourmaid, who has become infected with our enthusiasm. On July 19th I caught another, and took it over alive to Newmarket, where it was at once identified by Mr. Collin, who has kindly consented to write a description of it, and to do what he can to clear up the tangled synonymy. The plate which will accompany his paper was sketched by Mr. Edwin Wilson from a living specimen. Four more occurred on July 21st (one flying, obvious when on the wing) and following days, and one on August 10th.—ID.

Note on Eristalis tenax in *New Zealand*.—On July 5th, or a fortnight past mid-winter's day at the Antipodes, Mr. Dyherberg, manager of the Ashburton brickyards, sent me a box containing twenty-seven individuals of this cosmopolitan Dipteran, which he found hibernating together in a chink in a clay bank when breaking it down preparatory to making bricks. The direction of the clay bank is from east to west, and it is exposed to the hot autumn sun which causes it to contract somewhat, and form small fissures, while it is on the drier and warmer sides of the yards during winter. I have occasionally observed this remarkable Dipteran hibernating under the eaves of dwelling and out-houses, but never gregariously. There is a small area of stagnant swamp on the property adjoining the yards, which is used as a domestic duck farm. The larvæ are numerous in the stagnant water and mud of the swamp throughout the summer and autumn, which accounts for their presence hibernating in considerable numbers in the brickyards during the winter. After a chilly, damp summer, the month of May and first half of June were remarkably fine, and *E. tenax* was very numerous in this district. On June 20th the weather became wet, with cold light frosty nights, which has continued more or less up to the present time. These insects suddenly disappeared when the weather became cold, and have not as yet left their winter retreat.

Since the foregoing was written delightful spring days, with a shade temperature of 65° to 70° began on the 24th, which induced these interesting *Diptera* to leave their winter quarters. To-day I observe them abundant on the white flowers of the *Laurustinus*.—W. W. SMITH, Ashburton, N. Z.: August 30th, 1901.

Tarsostenus univittatus, *Rossi*, and *Lyctus brunneus*, *Steph.*, at *Harwich*.—I have been asked by the Rev. Guy S. Whitaker to record the capture of the above species at Harwich; they were found in some small numbers boring into an old box. The capture of *Tarsostenus* is interesting, as it has not occurred, as far as I

know, for a long time. It will be remembered, perhaps, that the late Mr. S. Stevens took *Lyctus brunneus* on fresh oak palings at Upper Norwood in 1879, and the two following years, in company with *Tillus unifasciatus* and *Teretrius picipes*.* —W. W. FOWLER, Peppard Rectory, Henley-on-Thames : November 7th, 1901.

New locality for Bembidium quadripustulatum, Dej.—Early in June last I was fortunate enough to find a single specimen of this rare beetle running over the muddy banks of an almost dry ditch at Deal. I am indebted to the Rev. H. S. Gorham (who first discovered the species in this country in a marshy place at Bearsted, near Maidstone) for confirming my identification of the insect; he informs me that a few examples are reported to have been taken since, but that he has not seen them. Among my other captures made during the same day were *Apion sedi*, of which I obtained several specimens at the roots of *Sedum acre*, in company with *Crypticus quisquilius*, and a single *Panagæus quadripustulatus*. In a ditch in the rear of the sand hills *Haliplus variegatus* occurred, together with *H. obliquus*, *H. confinis*, and *H. flavicollis*, whilst *Gyrinus elongatus* was to be seen describing on the surface of the water the evolutions peculiar to its genus; by sluicing the banks, *Dyschirius æneus* and *Heterocerus obsoletus* were to be had in abundance.—E. C. BEDWELL, 25, Ossian Road, Stroud Green : November, 1901.

Mimesa Dahlbomi and other Aculeates in Scotland.—Referring to my notes in the Ent. Mo. Mag. for November and January last, I have this summer obtained the following further additions to the list of Scottish Aculeates, namely: *Mimesa Dahlbomi*, Wesm., two ♂s taken near Polton, Midlothian, June 18th; *Andrena similis*, Sm., a ♂ taken near Kinghorn, Fife, May 4th; *Salix exaltatus*, Fab., a ♀, among some insects collected for me at Loch Awe, Argyleshire, in July, by Mr. R. Godfrey. The specimens have been seen by Mr. Saunders.—WILLIAM EVANS, 38, Morningside Park, Edinburgh : November 7th, 1901.

Odonata collected by Col. Yerbury in the south-west of Ireland in 1901.—During his long sojourn in the extreme south-west of Ireland in the summer and early autumn of 1901, Col. Yerbury collected about fifty examples of dragon-flies, which he kindly handed over to me. I find ten species, and nothing very remarkable from a general point of view; but the local information is useful, because the district is south and west of Killarney, which often forms the limit of the wanderings of tourist entomologists. The species and localities are:—

Libellula quadrimaculata, L., Loo Bridge.

Orthetrum cærulescens, F., Glengariff, Loo Bridge, Caragh Lake.

Sympetrum striolatum, Chp., Glengariff, Loo Bridge, Kenmare, Caragh Lake Parknasilla.

Æschna juncea, L., Caragh Lake, Waterville, Staigue Fort, Valentia Island; one ♀ from each locality.

Calopteryx virgo, L., Glengariff.

Ischnura elegans, V. d. L., Glengariff, Cloonee, Waterville.

Enallagma cyathigerum, Chp., Glengariff, Cloonee, Parknasilla.

* According to Jaequelin Duval (Gen. Col., iii, p. 199), *T. univittatus* preys upon the larvæ of *Lyctus canaliculatus*.—G. C. C.

Agrion puella, L., Parknasilla; one ♂ only.

Pyrrhosoma nymphula, Sulz., Kennmare, Waterville, Parknasilla.

Lestes sponsa, Hans., Kennmare, Waterville, Parknasilla.—R. McLACHLAN, Lewisham, London: November 3rd, 1901.

Hemerobius concinnus, var. *quadrifasciatus*.—As bearing on the question of the identity of these two forms or species (*ante* pp. 163 and 201), I may mention that on June 23rd, 1894, I beat a few specimens of the "variety," in company with plenty of the "type," at Wisley Pond, Surrey; the exact locality being the tall fir trees near the side of the pond opposite to that on which the Hotel stands.—C. A. BRIGGS, Rock House, Lynmouth, N. Devon: October 12th, 1901.

Neuroptera at Stornoway.—I took advantage of Mr. McArthur's proposed entomological trip to Stornoway this season to ask him to keep for me any stray *Neuroptera* that he came across, especially *Ephemeridæ* and *Trichoptera*. I append the results:—

ODONATA.—*Libellula quadrimaculata*, a nice series; the species was evidently common, and of the usual Scottish type, but perhaps not so bright as some of the Highland specimens.—*Eschna juncea*, three specimens.—*Pyrrhosoma nymphula*, a fine series, evidently common.—*Enallagma cyathigerum*, twenty ♂, but only four ♀; the ♂ ♂ showed variation in the form of the spot on the second segment.—*Ischnura elegans*, three ♂ and one ♀, all rather small; a somewhat northern record for this species.

TRICHOPTERA.—Only eleven specimens in all, but one, *Limnophilus elegans*, was a prize I had not expected from Stornoway.—*Phryganea varia*, four specimens, rather lightly coloured.—*Limnophilus elegans*, one specimen, but Mr. McArthur thinks he had a few others which came to grief. *L. marmoratus*, three specimens, showing some divergence from the type, especially in the more oblique position of the inner whitish markings in the middle of the wing.—*Stenophylax permistus*, one specimen.—*Sericoctoma personatum*, one specimen.—*Hydropsyche pellucidulus*, one specimen, ♀.—ID.

Peribalus vernalis in Suffolk.—Amongst a collection of *Hemiptera* I recently received from Mr. Claude Morley for naming I was delighted to find a specimen of *Peribalus vernalis*, Wolff. Mr. Morley states that he took it on May 25th this year, on a young poplar tree in Bentley Woods, near Ipswich, "beaten in the afternoon about three on a warm windless day." On the continent it is said to occur on oak and birch, as well as on some low plants. The occurrence of this rare species in Suffolk, so soon after the record of its appearance for the first time for many years in Sussex (see Ent. Mo. Mag., vol. xxxvi, p. 132), is particularly interesting as showing the wide distribution of the species, notwithstanding its infrequent occurrence. This appears to be the fourth recorded British specimen to which a definite locality can be attached, though Saunders, in his "*Hemiptera-Heteroptera of the British Islands*," mentions two others without locality. The other records being from Weston-super-Mare, Cumberland, and Sussex, the insect may well be looked for at places intermediate between these widely separated localities. Mr. Morley has most kindly presented me with this very interesting addition to the Hemipterous fauna of Suffolk.—E. A. BUTLER, 53, Tollington Park, N.: November 9th, 1901.

Society.

ENTOMOLOGICAL SOCIETY OF LONDON: *October 2nd, 1901.*—The Rev. Canon W. W. FOWLER, M.A., F.L.S., President, in the Chair.

Mr. G. C. Champion exhibited a long series of *Buprestis sanguinea*, Fabr., from Albarracin, Spain, showing the remarkable sexual dimorphism of this species. Mr. H. St. J. Donisthorpe, on behalf of the Rev. H. S. Gorham, of Shirley Warren, a specimen of *Hister marginatus*; Mr. Champion remarked that the species had been taken by Mr. Harwood, at Colchester; he also exhibited a number of rare *Coleoptera* from the New Forest:—(a) *Velleius dilatatus*, F., twelve specimens, ten from one hornet's nest in August, and the other two from two other nests, caught in specially constructed traps, the largest ♂ reaching the abnormal length of 32 mm.; (b) *Anthaxia nitidula*, L., twelve specimens taken in July, one being of bluish colour; (c) *Agilus sinuatus*, Ol., one, several others escaped—a beetle not taken for many years; (d) *Agilus viridis*, L., a series from sallows in August; (e) *Platydema violaceum*, F., five specimens—a species also not recorded recently; (f) *Colydium elongatum*, F., one specimen taken in the burrows of *Melasis buprestoides*, and another in the burrows of *Scolytus intricatus*. Mr. Champion said that *Platydema* had been taken about twenty years ago, while Mr. George Lewis associated *Velleius* with *Cossus*, in Japan, and not with hornets. Mr. C. P. Pickett, a series of varieties and aberrations of *Lycæna Corydon* taken during August, 1901, at Dover, including two females with upper wings wholly blue, dwarfs no larger than *L. minima*, and others (males) with under-sides devoid of spots; he also exhibited a series of *Angerona prunaria* (bred June and July, 1901), the results of four years' interbreeding, the coloration ranging, in the females, from bright yellow with no bands to very dark with deep chocolate bands, and in the males from plain intense orange with no bands to deep chocolate with bands, while one male assumed the coloration of the female. Prof. T. Hudson Beare, a specimen of *Medon castaneus*, Grav., taken in the water-net on April 22nd, 1901, at the edge of a pond in Richmond Park. Mr. A. Harrison, a series of *Amphidasys betularia* bred from parents taken in the New Forest in 1900, including twenty males and thirty-nine females, and six gynandromorphous specimens, out of seven bred, one being a cripple. Mr. Tutt said it was very remarkable that so many gynandromorphous specimens should have been secured from a single brood. There appeared to be modification in the sexual organs corresponding with external variation of the secondary sexual characters. Mr. Merrifield remarked that the proportion of gynandromorphous forms in hybrid specimens was always much larger. Mr. C. J. Gahan, a male specimen of *Thamnotrizon cinereus*, L., one of the long-horned grasshoppers taken by Mr. F. W. Terry at Morden, near Wimbledon; he called attention to a very interesting abnormality displayed by the specimen in possessing two pairs of auditory organs instead of a single pair, the second pair being situated on the tibiæ of the middle legs in a position corresponding with that of the normal pair on the fore-legs. Mr. F. Merrifield, a series of *Orgyia antiqua* bred from pupæ placed in a refrigerator five weeks, and then exposed to a mean temperature of 48° Fahr. Specimens thus treated were much darker than types of those occurring in a natural state, some approaching in depth of colouring to *O. gonostigma*. He also exhibited for comparison specimens from

Sutherlandshire lent by Mr. C. G. Barrett, none of them however comparable in darkness to those obtained by his experiment; and others from the collections of Mr. A. Bacot (including four of the American species) and Mr. L. B. Prout. Mr. Tutt said that the limits of variation of our own form were little known, and the most northern examples, though the largest, were decidedly not the darkest. Mr. R. South communicated a paper by the late Mr. J. H. Leech, B.A., entitled, "*Lepidoptera-Heterocera* from China, Japan, and Corea;" and Mr. G. C. Champion contributed "Notes and Observations upon the sexual dimorphism of *Buprestis sanguinea*."

October 16th, 1901.—Mr. E. SAUNDERS, F.L.S., Vice-President, in the Chair.

M. J. H. Fabre, of Sérignan, Vaucluse, France, was elected an Honorary Fellow of the Society; and Mr. W. Schaus, F.Z.S., of Trentham House, Twickenham, an Ordinary Fellow.

Mr. C. Morley exhibited for the Rev. E. N. Bloomfield leaves of hornbeam from Battle, and a photograph of leaves of sweet chestnut from Haslemere, rolled by *Attelabus curculionoides*. The former were not rolled by reason of a scarcity of their usual oak, which abounds in the locality. Mr. R. Adkin, a specimen of *Pieris Daplidice* taken by him at Eastbourne on August 19th last; he said that the insect was flying strongly, and in that respect, and indeed in general appearance, resembled on the wing a pale female of *Colias Hyale*. Mr. Rowland-Brown asked if there were any records of recent date of the discovery of the larva in this country, and with Mr. A. H. Jones corroborated the swift habit of flight in the species. In the discussion upon immigrant species that followed, Mr. R. McLachlan said that the recent observations of *Papilio Machaon* in various parts of the country seemed to suggest immigration on the part of a species not usually regarded as migratory; he also said that he knew of no reliable evidence of the larva of *Pieris Daplidice* having occurred on this side of the Channel. Mr. C. P. Pickett, a series of *Melitæa Cinxia* bred in June last from larvæ taken in the Isle of Wight, including light and dark varieties of the ♀ ♀, one ♂ with extra light upper wings, and one ♂ with the lower wings almost black; he also exhibited a series of *Chærocampa elpenor* bred in June last from larvæ taken at Broxbourne in July, 1900, including a variety of the ♂ with purplish lower wings, and another with purple markings on the upper wings. The Rev. F. D. Morice, specimens of *Hedychrum rutilans*, Dhl., and *Salix propinquus*, Lep., taken at Lyndhurst by Miss Ethel Chawner, and both new to the British list; he also exhibited two monstrosities, viz.: *Allantus arcuatus*, ♂ (sawfly), having on the left side two perfect and two other rudimentary wings, and *Gorytes quinquecinctus* (fossor), with the abdominal segments extraordinarily twisted out of their proper shape and places. Mr. E. Saunders said that these specimens appeared to him identical with continental *propinquus*, which was not rare in the south of Europe, where it was sometimes black, and sometimes red, towards the middle of the abdomen, but that he thought it could not be a variety of any other British species, as we have no species with a rugose propodeum which could agree with it. Mr. Arthur M. Lea communicated "A list of the Australian and Tasmanian *Mordellidæ*, with descriptions of new species;" and Mr. Edward Meyrick, B.A., F.Z.S., "Descriptions of new *Lepidoptera* from New Zealand." Mr. E. Saunders then read a paper upon "*Hymenoptera-Aculeata* collected in Algeria by the Rev. A. E. Eaton, M.A., F.E.S., and the Rev. F. D. Morice, M.A., F.E.S., pt. i, *Heterogyna* and *Fossoræ*, to the end of *Pompilidæ*."—H. ROWLAND-BROWN, Hon. Sec.

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ERRATA.

Page 146, line 20 from top, for "micropterous ♂," read "micropterous ♀."
 „ 221, „ 20 „ „ „ „ "histres," „ "histrio."

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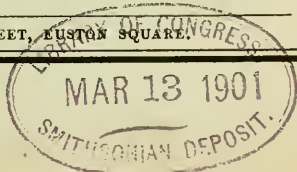
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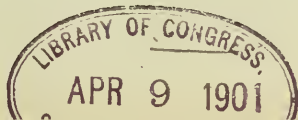
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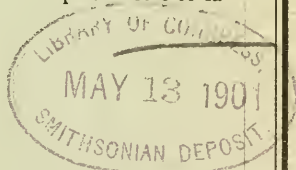
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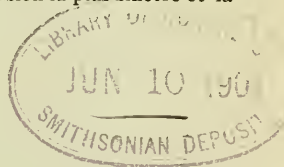
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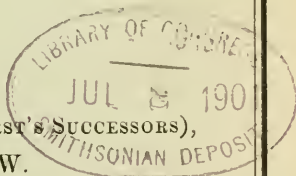
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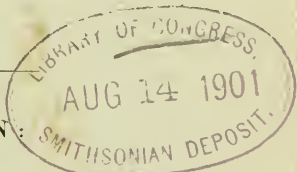
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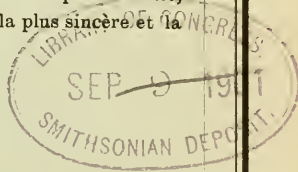
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[VOL. XXXVII.]

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